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- Intel Centrino mobile technology
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- Intel PRO/Wireless Network Connection 802.11b³
- Microsoft® Windows® XP Professional⁴
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility Radeon™ graphics
- 256MB DDR SDRAM • 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Integrated IEEE 1394 FireWire
- 5.5-hr Li-Ion battery⁵ • 3.6-lb travel weight⁷
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- Intel PRO/Wireless Network Connection 802.11b³
- Microsoft® Windows® XP Professional⁴
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility Radeon™ graphics
- 256MB DDR SDRAM • 20GB hard drive
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IBM ThinkPad X31 Solution Pack

Distinctive IBM Innovations:

- Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel Centrino mobile technology
- Intel Pentium M processor 1.6GHz²
- Intel PRO/Wireless Network Connection 802.11b³
- Microsoft® Windows® XP Professional⁴
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility Radeon™ graphics
- 256MB DDR SDRAM • 40GB hard drive
- Integrated Gigabit Ethernet and modem
- 5.5-hr Li-Ion battery
- 3-yr system/1-yr battery limited warranty⁸

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When you need to get the job done, you turn to reliable software, and this year had no shortage of new and upgraded programs. We'll show you which we found indispensable and why.

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Editor's Note

This is embarrassing, but I suppose it's time to come clean... I once owned a Commodore 64 computer. It was gray and ugly and, by today's standards, pretty primitive. But it did have programmable sprites, a cassette tape drive, and a version of Basic. For an additional \$400 (!) I eventually acquired a Commodore 1541 diskette drive to go with it; the drive clanked and rattled, and (slowly) read single-sided 5.25-inch floppy diskettes, frequently without corrupting them.

Of course, all of my Apple-centric friends laughed at me. (Actually, all of my Apple-centric friends still laugh at me. That's just the way they are.)

The thing is, even back then I knew something about personal computers. I'd worked on Commodore PETs, Apples, Timex Sinclairs, the TI 99/4A, and a few others. So why did I buy a C-64? Because it was the best out there, or so I'd been told. (In fact, I actually *waited* to buy my first computer until the Commodore was released because it came with 64K of RAM, a stupendous amount in those days, 16K more than the Apple II and II+. The Apple IIe would eventually match the C-64's RAM, but at twice the cost.)

The point of this (occasionally painful) reminiscing is that while we all want the best equipment we can afford, it's not always clear what that really means. For one thing, measures of excellence change as technology evolves. Besides, what's "best" depends on one's specific needs. And finally, there's some subjectivity involved: What I think is a great device may not be what you'd choose.

So, choosing the "best" of anything (and then publishing those choices in a magazine) is a risky business. We're bound to miss one of your favorites or include some device with which you've had trouble.

But we decided to try anyway. Our editors, staff writers, and freelancers got together to select what they felt were the best computers and computer-related devices and tools. There were heated discussions, a few arguments, and an occasional pitiful whine, but we got it done. If we missed your favorite computer, monitor, or application, I have a feeling you'll let us know.



ROD SCHER, PUBLICATION EDITOR

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Computer Power User • AMD's War With Intel

We take a close look at AMD in today's CPU space and its ongoing battle with Intel. AMD's Athlon 64 CPU is the fastest 32-bit processor the company has built and the company hopes to give Intel a good run for its money. You'll also find all the usual hardware and software goodness.



PC Today • Make Windows Work Better

This issue focuses on no-nonsense ways you can get more out of your Windows computer, including system performance tweaks, preventive maintenance tips, and useful add-on software.



CE Tips

Don't miss the premiere issue of *CE Tips*, where we explore the convergence of consumer electronics and computing. The December issue includes a special 44-page holiday buying guide that will give you some pointers on how to choose the right CE product in 12 categories, including TVs, DVD players, digital camcorders, PDAs, MP3 players, wireless phones, and more.

Corrections/Clarifications

In our October "Back Up Your Data" issue, we included incorrect pricing information on the Monarch Computer Systems Hornet XP Custom System on page 90. As the December issue went to press, the price for a system configured with a 2.4GHz Intel Pentium 4 processor, 1GB DDR 3200 memory, an 80GB Maxtor Serial ATA hard drive, no optical drive, a PNY Quadro FX 1000 with 128MB video RAM, and Windows XP Home Edition, was \$1,764. For current pricing and configuration information, contact Monarch Computer Systems at (678) 460-1593 ext. 228.

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Editorial Staff

editor@smartcomputing.com
FAX: (402) 479-2104
131 W. Grand Drive
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Advertising Staff

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131 W. Grand Drive
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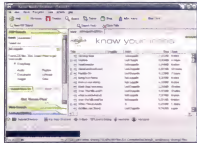
RIAA Probes Files To Nab Sharers

Many users of P2P (peer-to-peer) software, such as Kazaa and iMesh, tend to view file sharing as safe and anonymous. But when the RIAA (Recording Industry Association of America) recently slapped lawsuits on 261 P2P users for illegal file sharing, that comfort level quickly dissipated.

In reality, file sharing using readily available tools, such as Kazaa, is never anonymous. The IP (Internet Protocol) address of users can be easily identified, and those addresses can often be traced to individual

Internet users. Yet, in its investigative work leading up to the recent lawsuits, the RIAA went further than simply identifying IP addresses. Using "audio fingerprints," the RIAA said it determined that files shared on the users' accounts were indeed downloaded from other Internet users and not recorded from legally purchased CDs.

According to the RIAA, it used a technique called **hashing** to identify suspect music files. Hash values, or numbers, are generated from the contents of a file and included with



Shared files have unique values that lead trackers back to the original downloader.

Yep, We Download

A recent survey commissioned by the BSA (Business Software Alliance) found that attitudes on college campuses favor software piracy, with nearly two-thirds of surveyed students admitting they'd downloaded pirated software. Based on interviews with 1,000 university and college students and 300 faculty and administrators, the study also revealed that only 28% of students are aware of their institutions' software use policies.

Of The College And University Students Surveyed:

- 23%** Have downloaded software
- 32%** Of those who download software pay for it all or most of the time
- 68%** Have downloaded music
- 8%** Of those who download music pay for it all or most of the time
- 26%** Have downloaded movies
- 4%** Of those who download movies pay for them all or most of the time
- 66%** Say professors don't discourage software theft

Of The Educators Surveyed:

- 40+%** Say it's OK to share or swap software to cut costs

the file itself. Because the formulas used to create hashes make it highly unlikely that two files will share the same hash value, the RIAA claims it can match certain currently shared files with files shared as long ago as 2000 using the Napster service.

Other information in an MP3 file can also provide clues to its source. The **ID3 tag**, a fixed-length space in MP3s that allows for textual input, can include the title, artist, album, year, genre, and comments. If the ID3 tag isn't changed from download to download, it's possible to match MP3s with previously shared files, although this process isn't as precise as matching hash values.

Although the RIAA says these investigative measures give the association concrete proof of illegal file swapping, it's unlikely the approach will work in the long term.

According to statistics from Nielsen/NetRatings, Kazaa use dipped only slightly after news broke about the lawsuits, and file swappers are already discussing—and using—methods to thwart hash identification.

Tiny, Tiny Wireless Chip

Size does matter in the wireless world, but wireless devices can be only as small and portable as their internal components allow. With the tiny new AirForce One wireless chip from Broadcom (http://www.broadcom.com), devices that previously had no room for wireless components should now have no problem squeezing in wireless compatibility.

This wireless LAN (local-area network) transceiver packs a 2.4GHz radio, power amplifier, IEEE 802.11b baseband processor, MAC (medium access controller), Tx/Rx, and more onto a single silicon die. According to Broadcom, this one-chip architecture represents an 87% reduction in size over rival wireless



Broadcom's tiny AirForce One chip powers wireless devices.

solutions that require multiple chips. Also included is a power-management scheme called SuperStandby, which boosts the battery life of a wireless-enabled PDA (personal digital assistant) by several days.

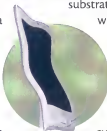
The minute size of the AirForce One allows wireless capability in a variety of portable electronic devices, such as PDAs, mobile phones, digital cameras, and MP3 players. As hybridization of portable devices continues, smaller internal components,

such as the AirForce One, should significantly boost the possibilities of future all-in-one products.

Bend That Screen

Computer screens are growing flatter, thinner, lighter, and, soon enough, more flexible. In fact, the U.S. Army is sponsoring a competition to win a \$43.8 million research contract to develop a flexible screen that troops can use in the field, and finalists vying for the lucrative contract include Arizona State University, Cornell, Princeton, and the University of Texas at Dallas.

Rapidly advancing flexible screen technology is highly anticipated in the mobile world. In May, E-Ink (http://www.eink.com) and Royal Philips Electronics (http://www.philips.com)



revealed paper-like display prototypes as thin as the width of three human hairs that can be bent or twisted. The 3-inch diagonal screen features a stainless steel foil substrate that works in tandem with a thin plastic film containing tiny capsules. The capsules contain black and white particles with opposing electrical charges that react to negative and positive currents to create patterns that humans see as text.

Although the future Army technology might remain solely in military hands, commercial flexible screen products could appear as early as next year, possibly in products such as smart cards and mobile phones.

REVIEW

Map Your Business Future

If you own a small business, you know that collecting and analyzing demographic information can be a bear because you often need information from multiple resources. But with Microsoft's MapPoint 2004, you can avoid extraneous hassles; this powerful software bundles street-level map information, demographics, and consumer purchase behavior data in one relatively easy-to-use package.

Although it's overkill for driving directions or route info—Streets & Trips 2004 or MapQuest are better—you'll find MapPoint enhances different as-

pects of business planning. By importing your business data into maps, you can see geography-based sales trends and performance arranged in a variety of methods. Sure, the original data is the same as what you might see in Excel,

but it's often easier to analyze the data when it's displayed in a visual, geographic manner, and at the very least, it's a nice break from staring at spreadsheets.

MapPoint 2004 includes Year 2000 U.S. Census boundaries and almost doubles the demographic and consumer profile data included in MapPoint 2002. Consumer purchase behavior variables let you track credit card shopping habits, investment patterns, PC use, entertainment attendance, supermarket shopping habits, use of yellow pages, and more.

If you use any other Microsoft Office products, you'll find MapPoint easy to use, especially with its several wizards. The software's new pushpin symbols help you keep track of your data, and we also like the ability to customize pushpin icons and print full-page maps. You can easily import data from Access, Excel, or Outlook, and on the other side, it's a breeze to copy and paste maps into Microsoft Word, PowerPoint, and Publisher. MapPoint 2004 isn't cheap and eats more than 1GB of hard drive space, but if you need to scope business trends on a map level, it's worth the cost.

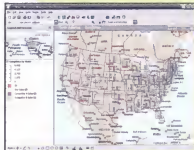
MapPoint 2004 North America

\$299

Microsoft

(800) 426-9400

http://www.microsoft.com/mappoint



REVIEW

Instant Messengers Battle For Users

Ever get the feeling that the person you're talking to isn't really listening? You might soon get the same feeling if you try to use a third-party IM (instant messaging) client with Yahoo! or Microsoft IM services. Recent and future updates to the services may block you if you're not using the services' native applications.

The updates could affect users of programs such as Cerulean Studios' Trillian, which lets users connect to AOL, MSN, ICQ, and Yahoo!'s messaging services. Trillian is a favorite of heavy IM users because it eliminates the need to switch back and forth between messaging clients. According to information on its Web site, updates to Trillian circumvent potential Yahoo! and MSN problems stemming from updates made by Yahoo! and Microsoft.

In our tests, Trillian still connects to both Yahoo! and MSN IM services, but we expect that could change, particularly with MSN's Messenger service. Microsoft says an upcoming patch to its service will lock out third-party client users, as well as users of older Messenger clients, including version 5.0. In addition to Trillian, the patch could affect other all-in-one IM clients such as Odigo and Imici.

The battle between the major instant-messaging services and smaller third-party client makers isn't new. In early 2003, AOL tried to block Trillian users from



accessing its messaging service, but every patch from AOL was followed by a patch from Cerulean Studios that restored access to AOL's IM service. Although Trillian still operates with AOL and other services, it's believed third-party clients will continue to face opposition from the major IM services.

Ironically, a recent Yahoo! survey of users indicated the company is considering following in Trillian's footsteps. According to the survey, "Yahoo! Messenger is considering introducing a new service that would allow you to use Yahoo! Messenger to communicate with users of other instant messaging services such as AOL, MSN, or ICQ."

The survey also specified that such a service would be considered "premium," which means it would likely carry a "small and appropriate fee." Depending on the plans at Yahoo!, Trillian might soon have some major-league competition.



Backup Button Spells End Of Hassles

Safety measures are often ignored because they're time-consuming or otherwise a hassle. In the computer world, this is especially true when it comes to backups, which most of us constantly postpone until it's too late. Maxtor is apparently well aware of this widespread procrastination. Its new external drives require only one action to back up your files and folders: Push a button.

Called OneTouch, these drives have loads of storage in sleek cases that feature a shiny silver button on the front panel. Pressing this button launches a backup script defined in your computer's backup software, such as the bundled Retrospect Express, which proceeds to save your files to the OneTouch drive. This process isn't necessarily magic because you can easily run such a script in Windows, but it does seem easier to remember.

Maxtor claims the drive requires an easy 1-2-3 setup, and the company's right—install the software, plug in the drive, and press the OneTouch button. After following Retrospect's initial backup instructions, press the OneTouch button in the future to initiate a backup. Retrospect copies only

current versions of files; if you delete a file from the source hard drive, that file will be deleted from the OneTouch drive. The model we tested includes 200GB of storage and both FireWire and USB (Universal Serial Bus) 2.0 ports. Running at 7,200rpm (revolutions per minute) with an 8MB cache, the OneTouch is quick, delivering backup speeds faster than CD-R (CD-recordable) or tape.

For a no-hassle, reliable backup, it's tough to beat the OneTouch. Sure, you could buy a second internal hard drive for much less, but you'd miss out on the convenience of one-button backups.

OneTouch FireWire and USB 200GB

\$299.95

Maxtor

(408) 894-5000

<http://www.maxtor.com>

Duly Quoted

"I thought that the two Joes, McCarthy and Stalin, were dead. But little did I know that they're both alive and well and running the RIAA."

—Grokster president Wayne Rosso, commenting on the RIAA's lawsuit against a 12-year-old girl for illegal file sharing. Rosso offered to pay the family's \$2,000 settlement with the RIAA. Source: vnunet.com

New Products

Compiled by Kylee Dickey

Quick takes on the latest hardware and software to hit the market at press time. Manufacturers' and publishers' release dates are subject to change, so some of the products may not yet be available when you read this.

Hardware

4GB CompactFlash Card

Lexar Media • \$1,499
Store hundreds of photos or files on
Lexar's 4GB CF memory card
(800) 789-9418; (510) 413-1200
<http://www.lexarmedia.com>

40GB iPod

Apple • \$499
The highest-capacity iPod to date
weighs just 6.2 ounces
(800) 692-7753; (408) 996-1010
<http://www.apple.com>

256MB Ultra CF II Card

SanDisk • \$104.99
CF flash memory card with 9MBps
transfer rate
(866) 726-3475; (408) 542-0500
<http://www.sandisk.com>

Sit, Stay, Check Email

He's back. Sony's third-generation AIBO, ERS-7, features floppy ears, a faster CPU, a higher-resolution camera, twice as much memory, and remote access capabilities. The digital puppy also has a new LED (light-emitting diode) face panel that lights up to display emotions. AIBO can recognize his owner's face and voice and respond differently than he does to a stranger. AIBO also automatically finds his charging station when his battery is low. As the owner, you can send AIBO commands through email, and it will respond by performing as instructed. (\$1,599; 800/352-7669; 408/432-1600; <http://www.us.aibo.com>) ■

C5300n Color Copy System

Okidata • \$1,499
12ppm single-pass color/20ppm mono-
chrome printer
(800) 654-3282; (856) 235-2600
<http://www.okidata.com>

ClickSmart 820

Logitech • \$179.95
Web cam or a 2.1-megapixel digicam
(800) 231-7717; (510) 795-8500
<http://www.logitech.com>

Cordless Desktop MX For Bluetooth

Logitech • \$179.95
Bluetooth keyboard and mouse with
built-in Bluetooth hub
(800) 231-7717; (510) 795-8500
<http://www.logitech.com>

FinePix S3000

Fujifilm • \$399.95
3.24-megapixel-effective camera
(800) 800-3854; (914) 789-8100
<http://www.fujifilm.com>

ImageMate 8 in 1 Card Reader/Writer

SanDisk • \$39.99
Hi-Speed USB 2.0 card reader for CF-
I/II, SMC, SD, MMC, MemoryStick,
MemoryStick Pro, and xD formats
(866) 726-3475; (408) 542-0500
<http://www.sandisk.com>

Mobile Bluetooth Headset

Logitech • \$99.95
Bluetooth headset
(800) 231-7717; (510) 795-8500
<http://www.logitech.com>

Mobile Proximity Alarm

Fellowes • \$29.99
Security alarm for mobile devices



Sony AIBO ERS-7

(800) 945-4545; (630) 893-1600
<http://www.fellowes.com>

Perfit Mouse Optical

Contour Design • \$109.95
Left- and right-handed mice
(800) 462-6678; (603) 893-4556
<http://www.contourdesign.com>

NL10276BC16-01

NEC Electronics • \$725
8.4-inch XGA TFT color LCD
(800) 366-9782; (408) 588-6000
<http://www.nec-lcd.com/english>

OneTouch 9320 USB

Visioneer • \$149.99
USB 2.0 color scanner with 3,200 x
6,400dpi resolution
(925) 251-6398
<http://www.visioneer.com>

PB2120

BenQ • \$999
DLP digital projector
(866) 700-2367; (909) 569-0700
<http://www.benq.com>

PDR-5300

Toshiba • \$399
5-megapixel camera with auto and full-
manual modes
(800) 288-1354; (949) 583-3000
<http://www.toshiba.com>

PX-708UF

Plextor • \$359
USB 2.0/FireWire DVD+R/-R/+RW/-
RW drive with 40X write speed
(800) 886-3935; (510) 440-2000
<http://www.plextor.com>

SDM-HX73

Sony • \$619.99
17-inch LCD with 500-1 contrast ratio
and native SXGA resolution
(800) 352-7669; (408) 432-1600
<http://www.sonymstyle.com>

ThinkCentre S50

IBM • \$739
Small desktop system that you can position horizontally or vertically
(888) 746-7426
<http://www.ibm.com>

Software

American Greetings CreaCard Platinum 8 DVD

Broderbund • \$39.99
Design greeting cards, gift wrap, banners, and other print creations
(800) 395-0277; (319) 247-3325
<http://www.broderbund.com>

Cook'n for Diabetes

DVO Enterprises • \$29.95
More than 1,000 recipes from the American Diabetes Association
(888) 462-6656; (801) 492-1290
<http://www.dvo.com>

FrontPage 2003

Microsoft • \$199
Design Web sites and perform browser-compatible checks
(800) 426-9400; (425) 882-8080
<http://www.microsoft.com>

Hallmark Card Studio Deluxe 2004

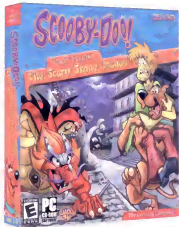
Sierra Home • \$49.99
Create printed gifts such as greeting cards, calendars, ecards, stickers, and newsletters
(425) 649-9800
<http://www.sierra.com>

Harvest Desktop

Back Office Solutions • \$199
Manage, organize, and view documents, image files, and Web pages
(402) 431-8464
<http://www.harvest-desktop.com>

Turn A PC Into The Mystery Machine

With the holidays approaching, you likely need to buy gifts for a few kids. In The Learning Company's Scooby-Doo! Case File #2: The Scary Stone Dragon, Scooby-Doo and the gang travel to China to celebrate the Chinese New Year. However, a giant stone dragon comes to life and puts the festivities on hold. Kids will use problem-solving skills to crack the mystery and save the Chinese New Year's celebration. The game has five possible endings, each with a different villain for the gang to catch. Kids can also print activity book pages to complete later. (\$24.99; 800/395-0277; 319/247-3325; <http://www.riverdeep.net/learningcompany/>)



The Learning Company Scooby-Doo! Case File #2

Jedi Knight: Jedi Academy

Lucas Arts • \$49.95
Learn the secrets of the Force from Jedi Master Luke Skywalker
(888) 532-4263; (415) 507-4545
<http://www.lucasarts.com>

MAGIX Movies On CD & DVD 2004

MAGIX • \$39.99
Convert old movies to digital and burn them to CD or DVD
(888) 326-2449; (305) 695-6363
<http://www.magix.com>

Modem Booster 5.0

inKline Global • \$39.95
Alters Windows settings to improve modem speeds
Phone number N/A
<http://www.inklineglobal.com>

Norton Internet Security 2004

Symantec • \$69.95
Now detects spyware and keyloggers
(800) 441-7234; (408) 253-9600
<http://www.symantec.com>

Photo/Graphic Edges 6.0

Auto FX Software • \$179
Enhance photos with 14 effects
(800) 839-2008; (205) 980-0056
<http://www.autofx.com>

Port Magic 1.1

Pure Networks • \$49.99
Configures network ports for interactive, online games
(206) 322-9002
<http://www.purenetworks.com>

Presto! VideoWorks Platinum

New Soft • \$84.95
Video-editing and DVD-authoring software that comes with a FireWire card
(510) 445-8600
<http://www.newsoftinc.com>

QuickBooks Customer Manager

Intuit • \$79.95
Standalone or QuickBooks add-on manages customer information
(800) 952-2558; (520) 901-3220
<http://www.intuit.com>

ResumeMaker Deluxe 11.0

Individual Software • \$39.95
Write a resume, conduct a job search, and practice for job interviews
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<http://www.individualsoftware.com>

Tiger Woods PGA Tour 2004

Electronic Arts • \$39.95
Compete with golfers such as Tiger Woods and Vijay Singh
(877) 324-2637; (650) 628-1001
<http://www.ea.com>

Don't Get Burned Buying Memory Upgrades!

Three Questions Other Memory Providers Hope You'll Never Ask...

Were you awarded Computer Shopper's "Best Place to Buy RAM" two years in a row?

50,000 readers in 51 computer-related categories voted Crucial **Computer Shopper's** "Best Place to Buy RAM" two years in a row!



"As the official factory outlet for Micron Technology's RAM-manufacturing facilities, (Crucial) offers near-wholesale pricing for a broad array of top-quality memory modules...you have to wonder why anyone would buy memory anywhere else."

— Computer Shopper magazine

Do you actually make the memory you sell?

WARNING! Listen carefully to the answer when you ask this question. Other memory companies claim to manufacture memory, too. What they actually do is assemble the memory chips made by someone else into memory modules. Ask them this: Do you make the chips that go on your memory modules? The chips are the important part, after all.

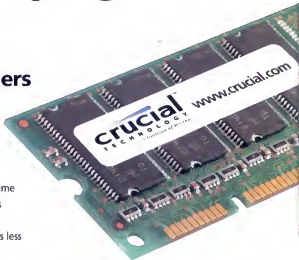
Crucial is the only memory upgrade supplier that's part of a major DRAM manufacturer, Micron. We actually make the chips that go on the modules.

In fact, because the world's leading computer manufacturers use our memory, chances are good that the memory in your system right now came from Micron. Crucial brings this same high-quality memory directly to you. It only costs less because you don't pay middleman mark-up fees.

Do you offer easy access to over 110,000 guaranteed-compatible upgrades for more than 20,000 systems?

Finding the right memory for your specific system can be confusing—and risky. With so many different systems and so many different types of memory, you can't just buy a "128MB memory module" and be assured that it will work in your system.

Using Crucial's award-winning Memory Selector™, finding the right memory is as easy as 1, 2, 3. In just three easy clicks, you'll find your upgrade—and it's 100% guaranteed to be compatible with your specific system or we'll give you your money back. With more than 110,000 upgrades for over 20,000 computers, notebooks, servers, and electronic devices, we've got what you need.



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128MB DDR ...	As low as	'127.99
256MB DDR ...	As low as	'147.99
512MB DDR ...	As low as	'185.99

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*See Web site for details

Prices may vary according to specific system requirements. The price listed was valid on 10/2/03 when we sent this ad to the publisher; however, prices may have dramatically increased or decreased since then. Visit the FAQ section of Crucial.com to learn more about why memory prices go up and down.

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Game Over

Lock Down Your Computer

You can only ask so many times. If you're having trouble limiting your child's TV viewing or video game or computer play, take a look at Card Access' new argument ender before you pack all of your electronics into the closet.

How It Works

The Time-Scout Monitor controls access to your computer by blocking power to your monitor until you swipe a card (which has parent-added minutes) through the Time-Scout's card reader. The Time-Scout's card reader resembles a cashier's credit card reader, but it's much more accurate—the device usually recognizes the card's bar code on the first swipe. When it accepts a card, the card reader displays your time balance and begins to count down. The reader also sends a signal to the power box, which has a power outlet, a single button, and its own power cord. The Power Box lets the power travel up your monitor's cord and voila! Your monitor is on. You can use the computer until you deplete your balance or swipe the card again to save your precious minutes for a rainy day. Either way, the power box will cut off the monitor's power.

You can set up, lock, and configure the Time-Scout in minutes. To lock your device, you plug its power cord into the Time-Scout's outlet and press the large lock button, which pushes a sturdy pin through the holes in each of the plug's prongs. To unlock the power cord, you'll need to push a paper clip into a tiny hole on the front of the Time-Scout.

The Time-Scout includes eight cards: three child account cards, one parent Add/Subtract card for each account, and two cards that let you configure the device. To add time to an account, you swipe a parent Add/Subtract card (each swipe adds 30 minutes) and then give your child the corresponding child account card. The Time-Scout keeps track of all account information, so you won't need your child's card to add or subtract time. You can use the other cards to reset the account balances or override the Time-Scout so

you can use the computer. If you need additional accounts, you can buy as many as six more child account cards from the Time-Scout Web site (you can get an extra account card by registering your product at the Web site). When your child swipes her card, the Time-Scout displays her remaining time and begins counting down.

Breaking The Law

So now your child has some free time and an axe to grind. If she's on the older end of the Time-Scout's 7-year-old-to-13-year-old age range, it probably won't take her long to spot that little hole right next to the lock icon and grab a paper clip. To counter young criminal masterminds, Card Access put a larger hole in the base of the lock button. You can slip a luggage lock through the hole to truly lock the Time-Scout.

There are other ways to bypass or trick the Time-Scout. Your child can remove the Time-Scout's power cord from the Power Lock and plug it into certain monitors. (Card Access plans to permanently attach the power cord when it offers future versions.) She can also remove the power cord from the monitor and plug in a new, Time-Scout-free cord or buy replacement parent cards. However, she'll need to go out of her way to pull off any of these tricks. She'd have to go to a store to buy a power cord or use a credit card online to buy replacement cards.

Not The End Of The World

Keep in mind that the Time-Scout is more than a physical barrier between your child and the computer. It's a tool that lets you regulate your child's digital play and lets her learn to ration her time in the same way she would an allowance. The Time-Scout includes two excellent manuals that help children and parents understand the device's role. You'll still need to make the rules, but you can use the Time-Scout as an objective referee. If you're sick of arguing about the computer, take the Time-Scout for a spin. **II**

For More Information

Time-Scout Monitor
\$89.95
Card Access
(801) 492-4750
<http://www.time-scout.com>



Time-Scout Monitor

Automate The Home

Use Your PC To Control
Your Abode

I've always liked the idea of home automation. There's something very Buck Rogers about lights that sense when you're home and flicker on to greet you. As I found out, however, home automation is sometimes more work than reward.

Pop-under Ads & Home Automation

PLC (power line carrier) technology transmits data to electrical signals and sends them over a home's electrical wiring. X10 is a PLC technology specifically designed for home automation systems. A number of companies, including X10 (the company responsible for those annoying pop-up ads for spy cams) and Smarthome, make X10-compatible modules for home automation.



LampLinc

My Setup

I received a PowerLinc USB transmitter (\$34.99) and three LampLinc modules (\$15.99 each) from Smarthome (<http://www.smarthome.com>), along with two motion sensors (\$21.99 each) from X10 (<http://www.x10pro.com>). These provide a foundation for a home automation system at a total price of about \$127.

Hit The Switch

The PowerLinc USB module plugs into a Windows-based PC and requires home automation software to make everything work. Other controllers that don't require a PC are available, but they cost more than \$34.99.

You need a nearby electrical outlet for the PowerLinc USB module (you can't use anything longer than a 10-foot USB cable to connect to the PC), and it must plug directly into a wall.

The LampLinc modules install near any lamp you want to control using your home automation system. Simply plug the module into a wall outlet (again, power

strips won't do) and plug the lamp into the outlet at the bottom of the module. Once I got a unit plugged in, I had to configure a base address so the module knew when the PC was talking to it. The easiest way to do this was to press the set button on the LampLinc and then transmit the proper address using the PC software and the PowerLinc USB module within 30 seconds.

The motion sensors were an interesting addition but one I couldn't use. The sensors used RF technology to send signals to the transmitter, but none of my equipment was capable of receiving wireless signals.

Software

You can use any software on your PC that supports the X10 standard. The PowerLinc USB module came with Home Control Assistant for PowerLinc Limited and Home Control Assistant Plus. The Limited edition works with a smaller number of modules and lets you set one schedule and four programs (which more than met our needs for testing). The Plus version provides a 30-day evaluation. After the 30 days, it costs \$160 to register. The Plus version provides an unlimited number of schedules.

Programming was straightforward, but my needs and means were limited. I set lamps to come on near dusk and go out one-by-one as bedtime approached. The PC must be on for the programs to work.

Autoyawn

I was less than impressed with my home automation setup. My experience was limited to lamps, leaving me wanting to control more, but that was impossible without rewiring switches. Although I didn't have any trouble getting everything set up (a fact I attribute to a lack of equipment plugged into my outlets due to an upcoming move), I'm hesitant to recommend home automation. Devices such as televisions and computer equipment can weaken X10 signals, forcing you to purchase more modules to boost the signals. I think \$127 is pricey for lamp control that didn't include repeaters or additional hardware. If home automation interests you, do your research first. ■

For More Information

PowerLinc USB, LampLinc,
Occupancy Sensors PMS02
\$126.94
Smarthome X10
(800) 762-7846 (Smarthome);
(800) 411-2888 (X10)

(949) 221-9200 (Smarthome)
<http://www.smarthome.com>
<http://www.x10pro.com>

The Mouse With A Pouch

Kensington's Unique Mouse
Is Ready To Travel

I find pointing devices for notebook computers problematic. I have tried using my notebook's touchpad, but I really prefer the feel and performance of a mouse. However, my hand cramps up after using tiny, portable notebook mice. I've tried larger devices and cordless devices. It always seems that I can't strike the right balance. I need a pointing device that is comfortable to use, doesn't take up too much desktop space, and tucks away easily into a pocket in my notebook case. Kensington's PocketMouse Pro Wireless addressed all of these concerns.

Mouse Mutation

This mouse's most notable feature is a small compartment on the side of the mouse that stores the wireless RF (radio frequency) receiver when it's not in use. That's one less accessory you need to pack away in your notebook case's pouches. The receiver itself is unique, too. After plugging it into your computer's USB (Universal Serial Bus) port, you can swivel it as far as 270 degrees to achieve the best possible signal.

The PocketMouse Pro Wireless is an optical mouse, which makes it a great notebook device. Optical mice have no exposed or moving parts, so they are ideal for use on surfaces that might not be perfectly clean, such as coffee shop tables. You also don't need to worry about an optical mouse collecting dust or lint when you pack it in your notebook case.

The feature that impressed me most was the power-saving technology. When you place the receiver back into its compartment in the mouse, the mouse's power turns off. You don't need to remember to flip a power switch or remove the two AAA batteries.

Mighty Mouse

The hardware is impressive, but Kensington's software, which you can download from the company's

Web site, is also noteworthy. Most mouse-configuration utilities let you change a few mouse settings and reassign the functions of a button or two. Kensington's MouseWorks takes mouse customization a step further. Let's say you want to minimize all windows when you press the scroll wheel. You can easily configure the mouse to do that. However, you might want to place a few more operations at your fingertips. You can also assign a function to the chord (a simultaneous click of the left and right buttons). If you want to assign even more button functions, you can also create your own custom pop-up menus. I created one pop-up menu for the chord that had options to minimize all windows, open the Control Panel, launch my browser, and open Windows' Help file. You can program this mouse to do almost anything.

As if all of that isn't enough, MouseWorks also lets you create program-specific sets of button functions. I set my scroll button to compose a new message in Outlook Express, reload the current Web page in Internet Explorer, print in Word, and jump to the index of people in my genealogy software. MouseWorks knows which program you're using and selects the correct button function for that program.

Such customization is handy, even with a desktop computer. I found it especially useful for use with a notebook. The more functions I placed at my fingertips, the less I had to maneuver a crowded mousing surface when I was using my notebook away from home.

The Kangaroo Mouse

The name "kangaroo mouse" might have fit this device just as well as the name PocketMouse Pro Wireless. The little pouch that stores the wireless receiver was a clever idea. This mouse seems to be the answer to so many of the problems I've encountered when using a pointing device on the road. However, I'm not rushing out to buy one immediately because the price is a little steep. If I find this mouse on sale, though, it will make an excellent addition to my set of notebook accessories. ■



PocketMouse Pro Wireless

For More Information

PocketMouse Pro Wireless
\$67.95
Kensington
(800) 235-6708
(650) 572-2700
<http://www.kensington.com>

Hard Drive On Display

*This Ultra-Modern SmartDisk
Product Delivers On Its Promises*

The more pictures you take with your new digital camera, the more frequently you forget to download those images to your PC's hard drive. As a result, it's easy to run out of room on your flash cards and more likely that you will accidentally delete a spectacular image you really intended to keep.

To prevent these problems, you need a place to store your images when you're on the road. In the past year, I tried the Apacer DiscSteno and Archos Jukebox Multimedia, both compact, battery-powered devices that claimed to store images quickly and easily, but each product had subpar design and odd quirks that made them difficult to use. Where those products fail, the SmartDisk FlashTrax succeeds spectacularly.

It's So Pretty

The FlashTrax is a 30GB hard drive adorned with a 3.5-inch, flip-up color monitor, rechargeable Li-Ion (lithium-ion) battery that lasts for about two hours (with heavy monitor use), and CompactFlash card slot. It's obvious that SmartDisk used the highest quality components on the FlashTrax because unlike the above-mentioned products, this classy blue and gray drive looks and feels like a solid piece of equipment.

I started my tests by purging the contents of a flash card. I simply inserted the card, pressed the Copy button, and the FlashTrax copied about 290MB worth of images to a folder on the drive in less than five minutes. Then I skimmed through my files. The FlashTrax can display a small thumbnail of each file as you sift through your images—these tiny images load faster than full-screen images yet still make it easy to find the photo you're looking for. If you don't mind short loading delays between files, you can use the entire expanse of the screen to see your images, and the clear monitor lets you zoom in to see small details.

FlashTrax displays file details including date and time, resolution, and even the f-stop and shutter speed you used to take the picture. Press ENTER again and you'll see the camera make and model, file size, metering mode, focal length, and more.

More Than Photos

FlashTrax stores any data type, and you can view drive contents in a traditional directory tree. You can cut and paste files from folder to folder and even rename folders using a tiny on-screen keyboard; this sounds like a chore, but the uncomplicated interface makes for a pleasant experience.

In this Explorer-type mode, you can access your MP3 music collection, which you'll transfer from your PC to the drive via the USB (Universal Serial Bus) 2.0 port. FlashTrax displays an on-screen audio menu that

lets you play, pause, and skip MP3 tracks, and as the monitor eats lots of power, you can fold down the screen and use the side-mounted buttons for control. You don't need headphones to listen to your tunes. The drive has a built-in speaker that pumps out sound at significant volume levels, albeit with some distortion.

You don't have to limit yourself to music files because FlashTrax can play the video clips many digital cameras create. You can route both video and still pictures to a television using the included audio/video cable. When you

do, you can use the remote to control playback.

Please, Please, Santa

Windows Me and later OSes (operating systems) automatically detect the FlashTrax via USB. Windows 98SE users first need to download the appropriate driver from the Web, and this process worked perfectly for me.

In fact, I was hard pressed to find anything about the FlashTrax that didn't work right the first time, and the only thing I didn't like was the price. The \$499 price tag is a bit expensive for a storage device, even one as cool as this, but there's still no better way to store your photos and files on the road. ■



FlashTrax

For More Information

FlashTrax
\$499
SmartDisk
(733) 436-2500
<http://www.smartdisk.com>

SONY

Sony recommends Microsoft® Windows® XP Professional for Mobile Computing.



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Capture, Edit, & Make Movies

Video-Editing Software Makes
Creating Movies A Snap



December 2003 Smart Choice • Ulead VideoStudio 7

Sharing home movies with friends and relatives has never been so easy. Gone are the days when you had to copy low-quality tape and mail copies to others. Today, a growing number of people are shooting digital video, editing those movies on their PCs, and shipping the finished products over the Internet. And as the prices of digital video cameras continue to drop rapidly, the number of home movie directors and producers is sure to increase.

If you're part of that group, you know that choosing the right video camera is only half the battle. Sure, the hardware is important in shooting crisp, clear movies. But software is also an important component for the

final product. The right software can let you edit videos; combine clips into a cohesive movie; add effects, titles, and audio; and do much more. Video-editing software isn't just for digital input, either. With the right hardware and software, you can upload analog captures onto your PC and create stunning movies, as well.

Here we take a look at three popular video-editing titles: Ulead VideoStudio 7, Pinnacle Studio 8, and Roxio VideoWave Movie Creator. Each program lets users easily upload video onto a PC, create a movie, and save and distribute the final project, all at an affordable price. While there are some high-end pieces of software on the market, none of the programs we

tested, priced at less than \$100 each, will break the bank.

How We Tested

We installed all three programs onto a Windows XP machine with a 1.28GHz Intel Pentium 4 processor and 128MB of RAM. This PC met the minimum system requirements of each program tested, and we were able to run each program without glitches or crashing software. (See the sidebar, "Buying Tips," for more on minimum system requirements.)

We considered the three main components of each program: its ability to capture video, the video-editing features, and the ease with which the user could save and share movies. We found no significant differences in installation, but each program has its own look and feel and unique set of features.

Ulead VideoStudio 7

\$99.95

Ulead Systems

(877) 226-6766

<http://www.ulead.com/vs/runme.htm>

If you're looking for an easy-to-learn yet sophisticated piece of software, you've found the right product. Ulead has been in the video software business for years, and it shows. Using the software is fairly simple, but there's nothing simple about its capabilities. VideoStudio 7 is straightforward enough that anyone can create a movie to be proud of in less than an hour, while more experienced users can spend hours working with a variety of features.

One of VideoStudio 7's strengths is its intuitive interface. When you launch the software, you see a large preview window in the middle, an options panel to the left, a selection of clips in the library to the right, and a work area at the bottom. The work area is where you choose to work in either Timeline mode, which shows when and where story events take place based on the position of clips, or the Storyboard mode,



which is a more visual representation of the movie. The software's top toolbar contains the commands for each major step in movie creation.

VideoStudio 7 provides you with numerous options in capturing video from your video camera. VideoStudio 7 supports capture of analog video, digital video (which it lets you save as either DV Type 1, which stores the whole stream as one unit, or DV Type 2, which splits the stream into audio and video), video stored directly to MPEG (Moving Picture Experts Group) or WMV (Windows Media Video) format, TV footage with a built-in TV tuner, batch capture (to record selected clips within a long piece of footage), and still images. The Capture feature automatically detects video sources and shows you the video as it is uploading.

VideoStudio 7 also provides you with a wide range of editing options. The large preview window displays components as you trim your video, add color clips and filters, introduce transitions between scenes, modify playback speed, insert snazzy animated titles, append credits and scene captions, and more. On the audio side, you can generate voiceover narration, background music, and other sound effects. You can do all this by toggling through Timeline and Storyboard mode with a mouse click.

Once you've created your masterpiece, you can save it to the format of

your choice. Store your movie on an analog tape or as a streaming Web file or burn it to DVD, VCD (Video CD), or SVCD (Super Video CD).

If you've used Ulead VideoStudio in the past, you'll notice a few changes over its predecessors. New features include real-time previewing, additional filters, content-based scene detection, 3D graphics and text, and the ability to include multiple movies on one DVD. Not to be missed is the Ulead VideoStudio Web site, where you can watch tutorials, read user stories, pick up tips, download updates and patches, and view product documents. Your Internet connection is temporarily down? No problem. Ulead's handy printed users guide also serves up tips and step-by-step instruction.

Roxio VideoWave Movie Creator

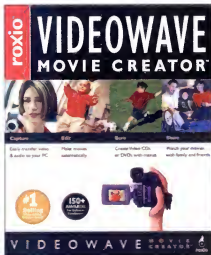
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Creating movies on the PC can be an intimidating process for the novice producer. Not only does it involve figuring out what makes a good movie, but it also means becoming familiar with a new video camera and learning a new piece of software. Fortunately, the latter can be a snap thanks to VideoWave Movie Creator, a friendly, low-cost software option from Roxio.



The theme of Movie Creator is simplicity, and it's evident from the moment you launch the program. The interface is clean and uncluttered, and each component has a step-by-step text menu that shows you which steps are necessary to complete each task and where you are in the process.

For instance, click the Easy Capture button to transfer video from an analog or digital video camera, television, VCR, or Web cam to your PC. The users guide notes that the first time you capture video, you may need to enter the Settings dialog box to choose the capture source (DV camcorder, capture card, or USB [Universal Serial Bus] video), but when we plugged our digital video camcorder to our PC using a FireWire device and launched the software, Movie Creator automatically detected the hardware and transferred the video to Movie Creator's workspace.

Once you have uploaded video content, Movie Creator presents you with several options for creating a complete movie. StoryBuilder is the best option for those new to movie making. Click the icon on the home page, and StoryBuilder walks you through naming the movie, selecting a template from 16 options (including A Day At The Beach, Sports Event, and Video), choosing an introduction, creating a title, adding video feed, adding music, selecting an ending, and finishing with an end title. Once you've determined the movie's basic format, choose the StoryLine Editor option for more control. Here's where you trim clips, add special effects, and otherwise edit the movie.

Movie Creator does not include a timeline-editing option as many other software programs do, but it does have an unusual movie-making editing tool: CineMagic. CineMagic lets you create a movie in just a few steps. You choose the video clip, audio track and style, and CineMagic bundles it into a home movie complete with transitions and effects. And you can open the movie in StoryLine Editor to fine-tune it later, changing items such as

brightness, color, contrast, graphic character overlays, text effects, 3D shapes, speed changes, and more.

When you're ready to save the final production for distribution to friends and family, Movie Creator lets you do so in plain language; you choose the format rather than the file type. For example, rather than instructing the software to create a particular file type, you choose whether the Make Movie function creates a movie for DV camcorder, TV/VCR, the Internet, video file, or DVD/VCD.

At less than \$50, Movie Creator is a fine choice for video novices. Those with a bit more experience would do well to consider Roxio's VideoWave Power Edition 5. Power Edition has a similar look and feel, but includes more powerful features. Lastly, be sure to visit Roxio's online community forums for help and advice from other Roxio users.

Pinnacle Studio Version 8

\$99.99

Pinnacle Systems

sales@pinnaclesys.com

<http://www.pinnaclesys.com>

Software developers often have to balance two seemingly conflicting goals when creating a program. On the one hand, the more robust the software, the more attractive it is to consumers. On the other hand, the program needs to be relatively easy to use or the creators risk turning away customers who get frustrated trying to understand all of its features. Pinnacle Studio version 8 achieves a nice balance.

Studio version 8 is a bit beyond novice users, so if this is your first experience with video editing on the PC, we recommend you watch the tutorial, which you'll find at the company Web site and when you first open the software. The tutorial will demonstrate the three major steps of capturing, editing, and making a movie and expose you to some of Studio version 8's options.

Novice and experienced users alike will find the Capture option is a breeze.

Studio version 8 can handle numerous sources, from analog and digital camcorders to VCRs and USB video cameras and Web cams. One useful feature is that the Capture option displays how much free and occupied disk space you have and how many minutes of video the hard drive can store. Plus, you can choose the quality of the captured video. If you plan to ship the video over the Internet, for instance, you may wish to capture it in MPEG full-quality



capture and save space over the DV full-quality capture option.

The Edit mode will keep you busy, as here is where the software becomes a bit more complicated to learn. It isn't that the interface is confusing; rather, it's that you have so many features that it takes time to learn what they all are and how to use them. For instance, consider the transitions. At first glance, it appears that there are only a dozen or so, but when you click the drop-down menu, you realize that to keep the more than 200 transitions manageable, the software divides the transitions into groups.

You also have multiple editing options. Studio version 8 lets you work in Timeline or Storyboard mode, and each has advanced editing features. Override default synchronization (when you insert a scene, the relative position of all subsequent clips stays the same) using a Track Lock button. Studio version 8 has a wide array of audio options, from sound effects in multiple categories to tracks for original audio, voiceovers, and background music.

Not surprisingly, Studio version 8 has sophisticated save options. Burn a disc with your DVD burner that will play in

most set-top DVD players or save the movie to video tape, VCD, SVCD, streaming media formats, or files that you can attach to email messages or post for download from your Web page.

Closing Credits

Because each of the three products we cover here fills a distinct need, and each does what it's designed to do very well, it was difficult to come up with our Smart Choice. We settled on Ulead VideoStudio 7 as the best product for the widest range of users, but it's hard to go wrong with any of these three. No matter which program you invest in, however, your first step after installation should be to run the software's tutorial. It'll soon have you on your way to movie-making fame. ■

BY HEIDI V. ANDERSON

BUYING TIPS

Know the program's system requirements. Video is notorious for hogging hard drive space and otherwise taxing a PC's resources, and video-editing programs are best suited for more powerful systems. If your PC doesn't meet the program's system requirements, don't waste your money on incompatible software.

Look for a free trial. Some developers offer trial versions. But if you can't download the software off the Internet, don't assume the software creators are trying to hide something from you. Some video-editing programs are too large to download over the Internet, even via a high-bandwidth connection.

Consider your camera. Digital video cameras come with a confusing array of hardware and software. Before investing in a software program, make sure it is compatible with your camera and that you don't already have an acceptable program.

Go, Go, Mozilla

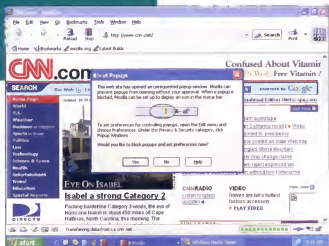
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<http://mozilla.org>

Software purveyors use ActiveX and other technologies to try to install their evil code on your PC when you visit particular Web pages and later have the nerve to claim that your browser's security settings equal explicit permission to do so. Microsoft has a business interest in ActiveX's success, so even if its Internet Explorer 6.0 browser does let you disable ActiveX, IE will pester you with nag messages afterward.

Combine such bullying with a lack of pop-up blocking and continual discoveries of security vulnerabilities, and IE will make you wonder why it's still the most-used browser in the world. Fortunately, there are faster, more secure alternatives, such as Mozilla 1.4 for Windows, Linux, and Mac OS X (free; <http://mozilla.org>). Mozilla only supports ActiveX with a plug-in (a download that adds support for a content format, such as Flash), and it doesn't let ActiveX controls install anything on your system by default.

Mozilla is a hefty 13MB download for Windows, partly because of its optional email, newsgroup, and IRC (Internet Relay Chat) features. However, Mozilla.org, the browser's group of open-source developers,



also offers a browser-only beta edition called Firebird.

Recent Netscape browsers use Mozilla's core browsing engine, called Gecko, and Netscape-compatible plug-ins work with Mozilla. Mozilla 1.4 displays most common image Web file formats, such as JPEG (Joint Photographic Experts Group) and GIF (Graphics Interchange Format), but not TIFF (Tagged Image File Format). Mozilla also supports XML (Extensible Markup Language), XHTML (Extensible HTML), and XUL (XML-based User Interface Language), which are becoming more important in Web design, along with SSL2 (Secure Sockets Layer 2), SSL3, and TLS (Transport Layer Security) protocols.

Mozilla can block most pop-ups, although it warns that some sites use other means to display discrete ads or windows. If a Web site has to display pop-up menus to operate correctly, such as

an online banking site, you can easily accept that site's pop-ups (or cookies or images) through options in the

Tools menu. Mozilla also offers fine control over Java content. For example, you can block Java scripts that resize or move windows, create or change cookies, or change images on a page. Speaking of cookies, there's a new option in Mozilla 1.4 to block cookies based on more specific privacy settings than in previous versions.

One of the most popular features in recent non-IE browsers is tabbed browsing. Tabbed browsing lets you view new Web pages while keeping previous ones quickly accessible with a single mouse click. At this writing, the closest things to tabbed browsing in IE6 are a) clicking Back several times or hunting through the History for previous URLs (uniform resource locators); b) opening new instances of IE for each page; or c) setting Favorites. We set Mozilla to open a new tabbed window whenever we pressed CTRL and clicked a hyperlink.

You can enable the Netscape Plug-In Finder Service to automatically download plug-ins when you encounter Web pages that need particular ones. Furthermore, Mozilla offers password management and automatic form completion. You won't have to leave your Favorites behind because Mozilla can import bookmark files exported from IE or other browsers.

Mozilla 1.4 seemed faster than IE 6 in our tests, especially after we enabled the experimental (and not universally supported) Pipelining feature, which attempts to download page elements in a single transaction. Mozilla isn't perfect, however. Some Web sites are only designed to look right on IE, so they may look jumbled on alternative browsers. Also, some sites' elements, such as weather forecast charts, may not appear at all under Mozilla if you block certain content or don't have the right plug-in. Finally, you'll still want to run a free spyware/adware blocker such as Spybot Search & Destroy (<http://www.safer-networking.org>) or Ad-aware (<http://www.lavasoftusa.com>) and update it occasionally.

If you make the switch to Mozilla or another browser, there's still no getting rid of IE. Microsoft still forces you to use IE to access Windows Update, and you'll still have to patch IE security holes because the browser is integrated with Windows. Still, for most day-to-day Web surfing, Mozilla is a better choice. **II**

BY MARTY SEWS

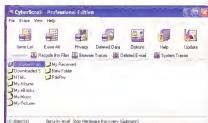
Gone For Good

Every time you use your PC, information about your electronic activities falls into your OS' (operating system's) cracks. You won't find the information by browsing your hard drive, but a malicious user can quietly retrieve your deleted files, email, and Internet tracks. CyberScrub lets you hunt down and permanently erase that data.

CyberScrub Professional Edition 3.0 keeps its predecessor's thorough data deletion routines and boasts a few new tricks, such as tools that erase hard-to-reach data in your Internet and email programs. Most importantly, CyberScrub includes the Welcome dialog box, which

lets inexperienced users choose one of three actions: Erase Previously “Deleted” Files

We like CyberScrub's intuitive GUI (graphical user interface), which features fresh icons, clear labels, and feature explanations. CyberScrub has several types of file deletion routines, ranging from fast wipes to



routines that exceed the Department of Defense's DOD 5220.22 standard. The program includes data deletion capabilities that let you delete information from a range of popular programs, including AOL IM, ICQ, Kazaa, and Microsoft Windows Media Player.

Users who want to customize CyberScrub won't be disappointed. It has a variety of options, including a Protect Cookies feature, which displays the cookies on your PC and lets you flag files you don't

CyberScrub Professional
Edition 3.0

\$59.95 (CD); \$49.95 (download)
CyberScrub
(770) 951-2080
<http://www.cyberscrub.com>

want to erase. CyberScrub also erases email in Microsoft Outlook, Microsoft Outlook Express, Netscape Mail, Pegasus Mail, and QUALCOMM Eudora.

CyberScrub offers a Standard Edition (\$39.95), which doesn't include the strongest data deletion routines, but has the same interface. If you want to completely wipe your hard drive before selling your PC, look at CyberScrub's other PC-cleansing program, cyberCide. **■**

BY JOSHUA GULICK

Build A Better Home

You have a detailed vision of your dream home in your mind, but turning those ideas into reality can be difficult. Better Homes And Gardens Home Designer Suite 6.0 helps you design or remodel your home.

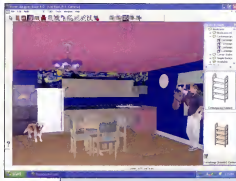
The Create New Plan dialog box prompts you to select a home style, such as Country Cottage. You can read descriptions and view photos of rooms designed in each style. The selected style determines the type of furnishings and materials Home Designer uses by default, but you can select your own materials at any time.

You can draw your design from scratch or use the

House Wizard, which asks for the number and types of rooms you'd like on each floor. It creates a set of labeled rooms and hallways you can resize, drag to the desired locations, and trace around to build exterior and interior walls.

Home Designer lets you add windows, furniture, and other elements from the 3D views. Many other programs only let you edit in 2D mode. Most items are customizable so you can select the material type and color you desire.

The Roof tool, which actually worked, wowed us. We've had a horrible time building roofs in other programs. Home Designer's Material List is a spreadsheet of the quantities of all materials in your design. Enter the price of each, and the program calculates the total expense. Another essential feature is Plan Check, which determines if your plan meets building principles.



As with all home-design programs, we had problems. Most items were easy to move and resize, but some were problematic. We could not figure out how to resize an above-refrigerator cupboard or place a built-in stove. We think Home Designer has a great feature set and is easier to use than most home-design software, but you'll still need time with the users manual. ■

BY KYLEE DICKEY

Home Designer Suite 6.0

\$99
ART (Advanced Relational
Technology)
(800) 805-0374
(208) 664-4204
[http://www.homedesigner
software.com](http://www.homedesigner
software.com)

Impulse Items

Compiled by Joshua Gulick

Cool Stuff For Less Than \$20

See it, like it, buy it. Impulse Items are products that capture your attention but won't make you dig too deep into your wallet. Check these pages each month for the latest interesting and inexpensive computing items we've run across.

I'M BLOGGING THIS T-SHIRT

A blog (Web log) is a popular type of online journal. Bloggers post everything from rumors to detailed accounts of their daily lives, so you never know when you'll appear as the star (or villain) in someone's blog. If you know a weissenheimer who likes to put her witty observations online, treat her to an I'm Blogging This T-Shirt.

ThinkGeek (<http://www.thinkgeek.com>) sells the shirt in M, L, and XL for \$14.99; XXL for \$15.99; and XXXL for \$16.99. Click the tabs above the listing to learn more about ThinkGeek sizes and view customer Action Shots.



COMPUTER FRAME ORNAMENT

Make your Christmas tree high-tech by hanging a computer ornament or two from its branches. Bytes 'n Grins (<http://stores.yahoo.com/bytesngrins>) offers several computer geek-friendly ornaments, including the Computer Frame Ornament (\$8.95). A red hat and Christmas lights decorate a tiny model of a keyboard, mouse, and monitor, which doubles as a picture frame. The frame can hold a picture that's 2.5 inches tall x 1.25 inches wide.

AUDIO MOUSE PADS

Break the mold this holiday season by sending the golfer in your family a computer accessory. A golf-related computer accessory, that is. ComputerGear's (<http://www.computergear.com>) Winning Shot Audio Mouse Pad (\$16.99) features a picture of a golf ball hovering over the cup. The picture covers the pad's surface, hiding a speaker and a small button (which sits directly below the ball, of course). When you press the button, you can hear a ball dropping into the cup as your adoring virtual fans applaud. The button is well below the pad's surface, so you won't accidentally press it while mousing. ComputerGear sells several other Audio Mouse Pads that feature frogs, whales, space shuttles, and other themes.





YAHITZEE FOR POCKET PC 1.05

Tired of playing Solitaire hour after hour at the doctor's office? Take a look at Handmark's

(<http://www.handmark.com>) new Yahtzee For Pocket PC (\$19.99). The game trades cards for dice, but retains several card game phrases, such as Aces, Full House, and Small Straight. Yahtzee allows multiple players and features rolling 3D dice. Users who have Palm OS (operating system)-based PDAs (personal digital assistants) can buy Yahtzee For Palm OS 1.10 (\$19.99). This version has a similar layout, but the graphics are not as crisp. You can try either version free.



SCREENMAKER3D

If you're tired of flying Windows logos, take a look at Xara's (<http://www.xara.com>) ScreenMaker3D. The program lets you create personalized screensavers that feature rotating photo cubes and 3D text. The Picture Cubes configuration window lets you insert your own photos and choose the number of picture cubes. You can also specify how many smaller boxes will circle the picture cubes. If you don't want to pick the settings, you can choose a style from the configuration window's drop-down menu. The 3D Text window also includes themes, such as Pulsate, Squishy, and Typewriter. The 3D Text window lets you add three lines of text. Try ScreenMaker-3D free, or buy it for \$14.95.

USB MESSAGE BALL

We've seen some unusual USB (Universal Serial Bus)-powered peripherals including lights, fans, and a light/copyholder combination. Even so, we were surprised to see the USB Massage Ball. The Massage Ball has a 6-foot cable and Power ON/OFF Switch. To use the Massage Ball, you can plug it into your notebook's (or PC's) USB port and rub the ball's nubs along your arm and wrists to ease tense muscles. CyberGuys (<http://www.cyberguys.com>) sells the Massage Ball for \$9.95.



PDA POUCH

Do you leave your PDA (personal digital assistant) at restaurants and meetings? We couldn't find a PDA leash, but we found the next best thing: a slim, no-nonsense pouch that attaches to your belt or a bag's shoulder strap. The pouch protects the PDA from dust and scratches, to a point, but the neoprene material isn't a license to go swimming. Shoreline (<http://www.shorelinecases.com>) offers the PDA Pouch in black or royal blue for \$14.99. Visit the Web site to see a list of compatible PDAs.



Windows XP

Call Security

With the latest barrage of security attacks on their OSes (operating systems), the folks at Microsoft have had their hands full, and the number of Windows XP Updates (Microsoft's term for patches) this month testifies to that. Let's take a look at the latest updates in order of their severity level.

You can access any of these updates using WinXP's Windows Update program and an Internet connection. Click Start, All Programs, and Windows Update to launch the program, and then follow the on-screen instructions. The download times provided below are approximations based on a dial-up connection using a 56Kbps (kilobits per second) modem.

The 824146 Security Update is considered critical. This update, which applies to Windows NT, Windows 2000, and Windows Server 2003, as well as WinXP, addresses a security problem that could let a cracker gain control and run code on your computer via the Internet. The cracker could then have the ability to install programs; view, change, or delete data; or create new accounts with full administrative rights. The update is 1,508KB, takes about seven minutes to download, and requires that you restart your computer. This update follows the release of another critical update for VBA (Visual Basic for Applications), two updates aimed at security holes affecting Microsoft Office software, and an update that Microsoft designed to protect your computer's NetBIOS (Network Basic Input/Output System).



Windows XP's Internet Connection Firewall can protect your computer from attacks over the Internet.

Visual Basic

The Office XP Security Patch KB822036 is designed to counteract a flaw in the way VBA checks document properties when any of the applications in which VBA is included opens a document. Because all Microsoft Office products include VBA, a cracker could execute code on your computer if you open a maliciously crafted document using Word, Excel, PowerPoint, Project, Visio, or Works or if you forwarded or replied to an email

in which Word was the HTML (Hypertext Markup Language) email editor for Microsoft Outlook. Because of the potentially far-reaching effect of this security hole, this update is considered critical. The update requires Office XP SP2 (Service Pack 2); it is 699KB, takes about one minute to download, and requires that you restart your computer.

Office Updates

Office XP WordPerfect 5.x Converter Security Patch: KB824938 fixes a buffer overrun problem in the Microsoft Office WordPerfect converter that makes your computer vulnerable if you import a Corel WordPerfect file using Microsoft Office XP, FrontPage, Publisher, or Works Suite. If exposed, your computer would be subject to a cracker running code. The vulnerability is exploited only if you open a malicious WordPerfect document, yet this update is considered important. The update is 296KB and takes less than one minute to download. It requires that you restart your computer.

The Access 2002 Snapshot Viewer Security Update Patch: KB826293 protects your computer from a cracker gaining access using either the Access Snapshot Viewer or Microsoft Access (if the Snapshot Viewer has been installed) and then reading files or running programs on your computer. Because the cracker could only gain control of your computer if he persuades you to visit a malicious Web site, this update's severity is considered moderate. The update is 154KB, takes less than one minute to download, and requires that you restart your computer.

NetBIOS

Security Update KB824105 resolves a flaw in the OS that could let a cracker see information in your computer's memory over a LAN (local-area network). In most cases, this threat is easily neutralized if a firewall is set up correctly; the severity level of this update is considered low for all affected software (Windows NT Server 4.0, Win2000, WinXP, and Windows Server 2003). The update is 339KB and takes about one minute to download; you will have to restart your computer after downloading.

WinXP Tips Since WinXP's release, we've encountered dozens of tips for enhancing and customizing WinXP. Here are a few especially handy ideas that work with both WinXP Home Edition and Professional Edition.

Speaking Of Security

With all the security issues in the forefront, it's worth mentioning that WinXP comes with a basic firewall designed to keep you protected while you're connected to the Internet. In fact, if you're directly (that is, not through a router) connected to the Internet, and if you don't have a more robust third-party firewall installed, you should have this firewall activated at all times.

To activate the WinXP Internet Connection Firewall, click Start, Control Panel, and then double-click Network Connections. (You can also get to Network Connections from your Desktop by right-clicking My Network Places and then choosing Properties.) Right-click the icon that displays your connection to the Internet (for example, DSL [Digital Subscriber Line]) and choose Properties. In the window that appears, click the Advanced tab. Check the box next to Protect My Computer And Network By Limiting Or Preventing Access To This Computer From The Internet.

Master Your Recycle Bin

As a default, WinXP (as with previous versions of Windows) assigns approximately 10% of your hard drive space to the Recycle Bin. In other words, if you have a 10GB hard drive, 1GB will be allocated to the Recycle Bin. If you want to reclaim some of that valuable hard drive space, you can adjust your Recycle Bin capacity in a few simple steps. Right-click Recycle Bin and then click Properties. The Properties dialog box contains a Global tab and a tab for each of your computer's hard drives. If you want to adjust the maximum size for all the hard drives to the same setting, set the new maximum size of the Recycle Bin (as a percentage of your total hard drive space) by moving the Maximum Size Of Recycle Bin slider on the Global tab. Click OK when you're done.

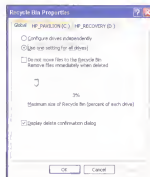
You can also use different Recycle Bin settings for different hard drives by placing a check mark in the box next to Configure Drives Independently and then clicking the appropriate tab to change the Recycle Bin settings. One thing to keep in mind: a deleted item larger than the storage capacity of the Recycle Bin will not be saved. It will be permanently deleted.

If you're tired of clicking Yes when you see Are You Sure You Want To Send [file name] To The Recycle Bin? every time you drag an item to the Recycle Bin, you can configure WinXP to skip the confirmation. Right-click the Recycle Bin and click Properties. In the Recycle Bin Properties dialog box, remove the check mark from the Display Delete Confirmation Dialog checkbox and click OK.

If you don't want to use the Recycle Bin at all, in the Recycle Bin Properties dialog box, check Do Not Move Files To The Recycle Bin. Remove Files Immediately When Deleted. (Be sure you really want to delete files before choosing that option.)

Clear Up (More) Hard Drive Space

If minimizing your Recycle Bin still leaves you wanting more hard drive space, you can clear old files off your computer with Disk Cleanup. Go to Start, My Computer or double-click My Computer on the Desktop. Right-click the drive you wish to clean up; this will usually be the C: drive or the drive where you installed the OS. Select Properties and then click Disk Cleanup. It may take a few minutes for the system to determine how much space you can free up. After the system has determined what files you can safely remove, a detailed listing of which files you can delete displays. The list is divided into categories such as Downloaded Program Files, Temporary Internet Files, Recycle Bin, and Temporary Files. A check mark indicates which files will be deleted if you proceed with the Disk Cleanup. If you are not sure which files you may need, a description of what the files are appears when you select the choices listed; you can deselect files you do not want to delete. The items under Disk Cleanup are usually safe to delete. Just make sure there is nothing in our old friend the Recycle Bin that you may want later. ■



You can adjust the Recycle Bin to use less hard drive space on your computer with the Maximum Size Of Recycle Bin slider on the Global tab.

BY CYNTHIA FRYE

Windows Me

Increase Windows Me's Stability

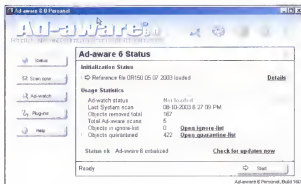
You've been running Windows Me since it was first available, against the well-meaning advice of just about everyone. Can you honestly say you find WinMe extraordinarily stable? It can be. Although Windows should protect the system from buggy software, given the severity of some of these bugs and the nature of poorly written and tested spyware and malware, it's a lot to expect. Even Microsoft has its limits.

With a little bit of care and some maintenance—mostly of the preventative nature—WinMe's stability (or lack thereof) can cease to be a problem, or not as much of one. It can rival the stability of your other systems and their OSes (operating systems). WinMe isn't as bad as your friends have led you to believe.

If you're thinking of upgrading to Windows XP, try these remedies first to see if your WinMe PC is not only more stable and reliable, but also running faster. You can save the money and headache of upgrading and tell your friends that you're satisfied with what you have. There are other important reasons for upgrading your OS, but being crash prone needn't be one of them.

Getting Started

Before proceeding with the tips in this article, there are few things you need to consider on your way to a stable system.



LavaSoft's Ad-aware can clean up your system.

Antivirus protection. Ensure your system is virus free by running a recently updated anti-

virus program. For a free, online virus checker, check out Trend Micro's Housecall (<http://www.housecall.trendmicro.com>). This will take awhile to run, and you should let it run completely.

Back it up. Some of the fixes we suggest in this article deal with editing the Registry (a database where Windows stores information and settings

pertaining to the hardware and software installed on your computer); a single typo or mistake can render your system unbootable. Create a backup of your current Registry (click Start, Run; type `regedit`; then select My Computer, Registry, and Export Registry File) and make a current restore point, too (click Start, Programs, Accessories, System Tools, and System Restore). In addition, you need to make an emergency boot diskette (a diskette that contains the necessary part of the OS so the computer can boot up in case of a crash; click Start, Settings, Control Panel, and Add/Remove Programs; select the StartUp Disk tab; and then click Create Disk).

Mo' memory. Memory has never been cheaper. If you're running a memory-starved system, an incredible amount of system resources are being used for swapping system memory onto your hard drive. By using the BIOS (Basic Input/Output System), we experimentally reduced system memory to 64MB from its standard 316MB, and the amount of swapping was staggering. If you installed System Monitor when you installed your OS, you can watch your system swap files by going to Start, Programs, Accessories, System Tools, System Monitor, Edit, and Add Item.

Even with up-to-date patching, some WinMe systems won't boot if available memory exceeds 512MB. This is most likely to happen with older systems, which may be incapable of dealing with what was once considered a huge amount of memory.

The Registry

Before we go any further with editing the Registry, be sure to back it up with the steps we mentioned earlier. Although the Registry serves an important and vital function, it can accumulate a lot of useless information. Large Registries tend to slow a system as required information within this collection is sought. Keeping the Registry to a reasonable size and removing useless and outdated information is essential to your system, particularly on systems running WinMe. If done manually, keeping the Registry down to a manageable size can be a full-time effort. Programs called Registry cleaners help you be efficient in managing your Registry.

RegCleaner, which is available free at <http://www.pcmidixwebs.com/regclean.htm>,



Windows Me

removes obsolete Registry entries. Another great free program is Toni Helenius' EasyCleaner (<http://www.toniarts.com/eccleaner.htm>). The program cleans up the Registry, discarding useless and outdated entries and inadequate uninstall programs often left behind. It can remove unnecessary and needlessly duplicated files and perform other tasks, such as cleaning the Start menu, which is often a difficult task to do manually.

Our test system, one updated from Windows 3.1 to Windows 95 to Windows 98 and finally to WinMe, had accumulated a lot of junk over the years. We used EasyCleaner to help with the housekeeping. We no longer needed ICQ ("I Seek You," an older instant messenger program) cache files and old Windows Update history files, which totaled nearly 10,000 files. Although small, each used a full cluster. Older Windows file systems can use as much as 8KB per cluster, so a file containing even a single byte is still using considerable space. If you've installed it, use Drive Converter to change the system to the more modern and efficient FAT32 (file allocation table, 32 bit) file system, which uses smaller clusters. (To access Drive Converter, go to Start, Programs, Accessories, System Tools, and then Drive Converter.) On our test system, removing these files provided a few extra megabytes, and removing 1,000 needless keys in the Registry made the system considerably faster, reliable, and stable. It's housecleaning that had been long overdue, but EasyCleaner made it nearly painless.

EasyCleaner has one problem, though: Faulty programming in the Clean Registry routine removes a necessary key in the Windows Help system, effectively disabling it. To work around this fault, type **HELPCTR** in the Skip box before selecting and deleting these keys.

Useful Utilities

Microsoft includes three utilities—Msconfig, ScanDisk, and Scanreg—to keep your system in tip-top shape. Access all of them via the Start menu.

Msconfig. Go to Start, Run, and type **msconfig** to access the world of modern and legacy control files. These files, such as INI (initialization) files, were often used before the Registry had been designed and were used for such things as controlling the startup of Windows. When WinMe first starts to run, programs in the Startup group are run automatically. A faulty program can cause all subsequent operations of Windows to fail or run poorly.

Two such startup programs are WinMe's PCHealth and TaskMonitor, both attempts by

Microsoft to extend and enhance the well-being of WinMe. Many users feel these particular programs fail miserably in this task and substantially degrade the performance of the system. To remove them from the startup routine, go to **MSCONFIG's** Startup tab and uncheck both items from the list. Neither of these programs are essential to your system—PCHealth collects system configuration changes, and other WinMe programs ineffectively use TaskMonitor in an attempt, which unfortunately fails, to make your system operate more efficiently.

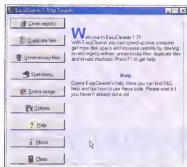
ScanDisk. To ensure your hard drive is in good shape and running optimally, run ScanDisk. Access ScanDisk by going to Start, Run, typing **scandisk**, and then selecting your system disk (usually C:). Make sure **Thorough** is selected and click **Start**. ScanDisk makes sure your file system is consistent; ensures that your system can read all your data; and assures that files have legitimate sizes, links, and attributes. It's a good idea to run it regularly.

Make sure you have at least 500MB of free hard drive space. WinMe needs hard drive space for important temporary files, such as **swap files** (files on a hard drive used as virtual memory). The more free space on your hard drive, the better, as seeking this required space on a nearly full system makes it slow and unresponsive.

Scanreg. You can easily maintain the integrity of the Registry through Scanreg, which is a part of the standard Windows distribution. Access Scanreg via Start, Programs, Accessories, System Tools, System Information, Tools, and then Registry Checker.

Take Out The Garbage

Keeping potentially dangerous items, such as viruses, off your system, should be a no-brainer: You know the drill about never opening an unknown attachment and so forth. However, there's a new type of problem that may be slowing down and making WinMe systems less stable. **Spyware** is obnoxious software included in otherwise desirable downloadable software that does unexpected and often unnoticeable things to your system. It may relate the URLs (uniform resource locators) of sites you visit to some unknown entity across the Internet, or it may pass your email address to a spammer. Spyware can install software you know nothing about without your knowledge or permission.



Use EasyCleaner to straighten up your Registry. Here is its main menu.

Windows Me

Worse, this software has likely not been thoroughly tested and certainly not tested in your environment. So your WinMe system may be crashing more frequently because someone installed a seemingly innocent game or utility.

There's some excellent, and often free, software for thwarting these insidious programs. Probably the best known and most widely respected is Lavasoft's Ad-aware, freely available for download at <http://www.lavasoft.de>. It will scan your whole system, look through everything on each of the system's hard drives and the Registry, seek out known adware, and aid in its removal. And that's just a start. Make sure you download a recent edition and build. (As of this writing, the current version is Ad-aware 6, Build 181.)

The bottom line is that your system can accumulate a lot of clutter. Keeping the hard drive clean can be tough. A regular run of Disk Cleanup is healthy in any computing environment. This program can eliminate accumulations of cybertrash, such as files living in your computer's Recycle Bin or the temporary Internet files that have been around for months on end. You'll find Disk Cleanup at Start, Programs, Accessories, System Tools, and then Disk Cleanup. To make it a regular part of your computer's routine, go to Start, Programs, Accessories, System Tools, Scheduled Tasks, Add Scheduled Task and work through the wizard to schedule the Disk Cleanup task. Disk Cleanup can go a long way toward keeping the aforementioned 500MB of hard drive space free and accessible.

Turn Back Time

One of WinMe's innovations was the automatic creation of System Restore points, which make

must be controlled. To erase old restore points, you must enable and then re-enable System Restore. Between these two steps, you'll set System Restore's limit. To disable System Restore, click Start, Settings, Control Panel, System, Performance, File System, and Troubleshooting and then put a check mark in the box next to Disable System Restore. Windows will exit and reboot when you click either Apply or OK. All of the old restore points are deleted, which may take a moment or two. Before restoring this check-pointing action, limit how much hard drive space will be used in the future by going to Start, Settings, Control Panel, System, Performance, and File System, selecting the Hard Disk tab, and sliding the control to about 900MB.

Pick up the pieces. Now is a great time to defragment the hard drive by going to Start, Run and typing defrag. Defragmenting your hard drive will organize all of the pieces of a file into contiguous locations on the hard drive, thereby speeding up access to that file. This will likely take quite awhile to run if you haven't run it regularly. It's well worth the investment in time because subsequent runs will take less time, as fragmentation of most files only happens when you create and update them.

Once finished, re-enable System Restore by removing the check mark in the Troubleshooting box and rebooting your system. Create the first restore point manually by going to Start, Programs, Accessories, System Tools, and System Restore.

Last Words

Two sites with pertinent information and downloads are Answers That Work (<http://answersthatwork.com>) and Annoyances.org (<http://www.annoyances.org>). Look through the information at either site, and you'll discover there are reasonable measures to take besides updating your OS.

A good utility to help clue you in on how well your system is tuned is called Wintop, available as part of the free Microsoft Kernel Power Tools you can find at <http://www.dewassoc.com/support/useful/wintop.htm>. This tool gives an accurate CPU percent usage real-time display and is essential to really understand what's going on beneath the covers of your system. It's an oldie but goodie, first available in this form in Win95. Also, Microsoft has a separate support center just for WinMe users. Access it at <http://support.microsoft.com/default.aspx?scid=fh;EN-US;winme>. ■

BY ROSS M. GREENBERG

Name	CPU	Private	Working Set	PID
explorer.exe	0.0%	1,352	8	2048
system.exe	0.0%	1,352	4	2048
smss.exe	0.0%	1,352	1	2048
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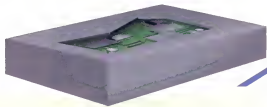
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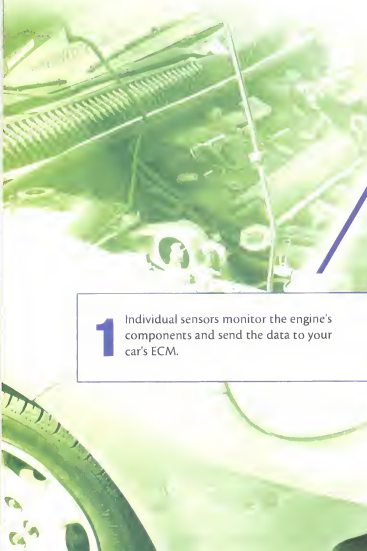
Keep An Eye On Your Car

Your car displays its gas tank status and signals most problems via the dashboard lights, but your car knows more than it lets on. Onboard computers, such as the ECM (engine control module), use multiple sensors to keep tabs on your car's health. Generally, cars reveal these details only to mechanics and emissions


testers. Now, Davis' (<http://www.davisnet.com>) CarChipE/X records the sensor readings as you drive and later displays the information on your PC. You can use the data to diagnose current problems or identify bad driving habits, such as hard braking, that may cause trouble in the future.



The CarChip takes advantage of the sensors already in your car to record information about the engine, such as coolant temperature, fuel pressure, airflow rate, and throttle position. You can configure the CarChip to record readings from as many as four sensors at once.



1 Individual sensors monitor the engine's components and send the data to your car's ECM.



5 Once the CarChipE/X instructs the ECM to turn off the Check Engine light, the light remains off unless it detects another problem. However, you can't stick your head in the sand forever; if the problem continues, the light will appear when the car restarts.



Vehicle manufacturers build OBD II interfaces into each car (1996 and later models) so emissions testers can access the ECM and other onboard computers. The CarChipE/X uses the interface to record how fast you drive, how hard you accelerate, and how hard you brake. The CarChip can also record readings from as many as four of the sensors that monitor various engine components. You can use the information to diagnose problems (the CarChip can also record trouble codes) or to keep tabs on your family members' driving habits.

2 The CarChipE/X retrieves the data and any trouble codes from the ECM via the OBD II (onboard diagnostics II) interface, which is generally within 3 feet of the steering wheel. The CarChipE/X can store as much as 300 hours of data.

4 The CarChipE/X can't adjust your car's sensors and components, but it can turn off the Check Engine light. If a loose gas cap triggers an engine light, you can use the CarChipE/X software to diagnose the problem and configure the CarChipE/X to reset the light.

3 When you're ready to view the CarChipE/X's information, you can remove it from the OBD II interface and connect it to your computer. The CarChipE/X software displays sensor readings and trouble codes by date and vehicle.

The CarChip includes a data transfer cable (which attaches to your computer's serial port), an AC adapter, and software that lets you view the data and configure the CarChip.

If you like reports, plots, and tables, you'll love the CarChip software. It can display the distance the car traveled and indicate starts and stops, but it doesn't know where your daughter took the car yesterday. You can use the software's default settings to determine the ranges for reasonable speed and braking, or you can adjust the thresholds yourself. You can also use the software to clear the CarChip's memory and synchronize its clock with your computer's clock.



Honestly, Officer, I Wasn't Speeding

Most of the CarChip's features let you diagnose problems and spot unusual wear and tear, but the Accident Log feature turns the CarChip into a little black box. If your car brakes hard and then stops abruptly, the CarChip assumes that the car has crashed and creates a log that displays the car's speed for the last 20 seconds before the collision. **I**



Burn, Baby, Burn

Is It Time For Recordable DVD?



ONE THING IS CERTAIN when it comes to your computer: If you wait long enough, the fancy new device you are desperate to have will drop in price and improve in performance, making the wait worthwhile. A good example of this is recordable DVD technology, as it moves from the early adopter stage into the mainstream marketplace.

What was once an expensive, confusing upgrade from CD-R (CD-recordable) is now an affordable alternative that will certainly replace recordable CD drives in the next few years. But there are still choices to make and terms to understand before you can make a smart choice.

What It's All About

Depending upon whom you ask, DVD means digital video disc or digital versatile disc. But regardless of the

name, it's an optical disc format that provides 4.7GB of space, or almost seven times the storage of a standard 700MB CD. In the computer world, it's the next generation past the CD, giving more capacity and faster access while using the same size disc and remaining backward compatible with CD technology.

DVD recorders give us a wealth of possibilities. Remember all those family videotapes stuck away on a closet shelf? You can capture them to your computer, edit the best parts, and burn them to a DVD you can duplicate and give to all the relatives. Not only do you get kudos from the family, but your precious video memories are safe on media that's good for 30 to 50 years, which you can copy to new discs without any loss of quality.

How about all those digital images you've taken with your digital camera or scanned? You can create a DVD slideshow and play it on your television with any DVD player. And if you're an MP3 fan, imagine a disc that can hold more than 1,000 songs.

On the practical side, recordable DVD lets you make backups of all your important media and document files without having to use multiple CDs. You can even make a copy or ghost image of your C: drive, so that the next time a nasty computer virus hits or Windows decides not to work, you can get back up and running in a few hours rather than a few days.

A Tale Of Five Formats

Considering what recordable DVD offers, why doesn't everybody use it? The answer is simple: The number of DVD recordable formats is confusing, and the hint of compatibility problems concerns us. Instead of agreeing on one recordable format, the consumer electronics industry followed the path of confusion by releasing six competing formats that provide varying levels of compatibility with existing DVD players and DVD-ROM drives. To help you through this confusion, let's take a walk through DVD history.

The tale begins in 1995 with the DVD Forum (<http://www.dvdforum.com>), a group of hardware and software companies that includes Pioneer, Hitachi, Philips, Toshiba, and Sony. In cooperation with the movie and computer industries, the group developed the initial standard for DVD-ROM, a high-capacity optical disc system. In 1996, the group extended the DVD-ROM technology to the DVD-Video standard, and in 1997, the first consumer DVD-ROM drives, DVD-Video players, and DVD movies hit the market.

Seeing the potential for recordable DVD, Pioneer, in cooperation with the DVD Forum, created a recordable format called DVD-R (DVD-recordable). DVD-R is a write-once system where a laser is focused on a layer of the disc containing recording dye, and dark or light spots are created on the layer depending upon where the laser hits. The light and dark spots provide a way to record the 1s and 0s of a computer's binary data system.

The first DVD-R systems cost more than \$17,000 with media running as much as \$50 each, with a capacity of only 3.9GB. The DVD Forum also created a rewritable standard called DVD-RAM, which works like DVD-R but uses a special caddy system and phase change technology where spots in the dye layer are created at one laser temperature and erased at another. In 1998, the first DVD-RAM drives hit the market with discs that held 2.6GB on each side. During that year, the Forum also increased the capacity of DVD-Rs to 4.7GB.

Dissatisfied with the caddy system needed for the DVD-RAM format, Sony, Philips, HP, and a few other DVD Forum members created a new group called the DVD+RW Alliance (<http://www.dvdrw.com>). The Alliance created a different rewritable standard called DVD+RW (DVD+rewritable) that was announced in 1999 but not made available until 2001.

Later in 1999, the DVD Forum released a new standard based on DVD-R technology called DVD-RW (DVD-rewritable) to directly compete with the DVD+RW standard. That same year, prices for DVD-R drives dropped to less than \$6,000, and the next generation of DVD-ROM drives were released with the ability to read DVD-R media.

In 2000, the DVD-R format was split into DVD-R (Authoring) for professional use and DVD-R (General Use) for consumer use. The following year, the first combination drives were released, including DVD-R/RW drives that also supported CD-R/RW formats and cost less than \$1,000. By the end of

the year, prices had fallen to less than \$500, and combination drives were the standard rather than the exception.

In early 2002, the DVD+RW Alliance released the DVD+R (DVD+recordable) format to compete directly with the DVD-R format. As the year progressed, the majority of new drives Alliance members released were combination DVD+R/RW recorders that also supported CD-R/RW.

By the end of 2002, five DVD recording standards were available: DVD-R, DVD-RW, DVD-RAM, DVD+R, and DVD+RW. The field narrows to four if you drop DVD-RAM from consideration because it's a data storage system most DVD-ROM drives and DVD players can't read. The remaining four formats fall into DVD-R/RW on one side and DVD+R/RW on the other.

The Current State Of DVD Recorders

Now for some good news: Since the beginning of 2003, the war among the

Most of the problems involved DVD-RW and DVD+RW media, which were less reflective than DVD-R and DVD+R and harder for the players to read. According to current statistics compiled at DVDR Help (<http://www.dvdrhelp.com>), DVD-R is compatible with about 90% of the existing DVD players and DVD-ROM drives, DVD+R is compatible with 85%, and both DVD-RW and DVD+RW are at the 73% compatibility level. As newer models replace older DVD-ROM drives and DVD players, compatibilities for all the formats should approach 100%.

Another big factor that lessens the effect of the compatibility issue is the emergence of dual and multiformat recorders. A dual recorder refers to one that supports the DVD-R/RW, DVD+R/RW, and CD-R/RW formats, while a multirecorder supports those formats, plus the DVD-RAM standard. In the past few months, most recordable DVD makers have come out with dual or multiformat



Many companies, such as HP, offer both internal and external versions of their DVD recorders.

DVD recordable formats has been quieting, and the confusion preventing PC users from purchasing the drives has been abating. One reason for the change is improvements in each format that have narrowed the differences among them. Second is the emergence of recorders that support all the formats. Let's take a closer look at the key factors typically used to compare the four DVD recordable formats.

Compatibility. Early DVD recorders suffered from compatibility problems that prevented burned DVDs from working with certain set-top DVD players and DVD-ROM drives.

recorders, and the trend suggests that by next year, this type of recorder will dominate the market.

Speed. As with a CD, the speeds of a DVD recorder are presented as X factors. But unlike CDs, where 1X represents 150KBps (kilobytes per second), 1X for a DVD is 1.352MBps, or almost nine times faster. Most recorder makers present the speeds as six numbers, representing DVD read, write, and rewrite, and CD read, write, and rewrite.

Currently, both the dash and plus formats have write-once recorders at the 4X speed, which burns a 4.7GB DVD in about 15 minutes, assuming

you are using media that supports 4X. For rewritable recording, the typical speed for DVD+RW is 2.4X or 4X, while for DVD-RW it's 2X. Also consider that there is less lead-in and lead-out time (the time it takes to mark the data boundary on the DVD and finalize the disc) for DVD+RW than for DVD-RW. For CD-R/RW burning, DVD recorders are typically slower than a dedicated CD-R/RW drive.

Price. DVD-R/RW recorders had a big head start on DVD+R/RW drives and were therefore usually less expensive to purchase. Over the past eight months, this changed with pricing for both formats equaling out and the general price for DVD recordable drives dropping as much as 40%. Currently, you can purchase either a plus or dash recorder for as little as \$149 and a dual-format recorder for only \$199. And price drops are expected to continue. In terms of name-brand media, both dash and plus recordable discs are selling (in small volume) for about \$2, and rewritable discs sell for about \$3.

Media capacity. The plus and dash recorder formats each use their own special discs, but the capacities are the same. DVD-5 refers to a single-sided, single-layer, 4.7GB disc and is the most common type of media you'll find at the store. DVD-10 is a double-sided, single-layer disc with a 9.4GB capacity. Although not as common, you can purchase this type of media, but you must be willing to eject and flip over the disc to use both sides. DVD-9 is a type of media only DVD-Video supports and consists of a single-sided, dual-layered disc with an 8.5GB capacity.

One word of caution: Before you try to squeeze as much as you can onto a 4.7GB disc, keep in mind that optical disc capacity is measured differently than other computer-related capacities. Whereas 1KB of RAM or hard

drive space is actually 1,024 bytes, 1KB of optical storage is 1,000 bytes. A DVD with a capacity of 4.7GB (4,707,000,000 bytes) translates to only 4.38GB of actual computer capacity (4,707,000,000 bytes / 1,024 =



Prices for DVD-R/RW and DVD+R/RW media have evened out over the past eight months.

$4,596,679\text{KB} / 1,024 = 4,489\text{MB} / 1,024 = 4.38\text{GB}$).

Making The Purchase

As compatibility issues disappear, prices drop, and dual-format recorders become more plentiful, deciding which DVD recorder to buy gets easier. But there are still a few things to consider before you hand over your hard-earned cash.

First, carefully examine the recorder's system requirements. In a survey of current recorders, we found the typical requirements to be a Pentium III 800MHz or better processor, with 128MB of RAM, 6GB to 10GB of free hard drive space, and Windows 98SE or better. Some units have lower requirements, but almost all suggested something along these lines for DVD authoring.

Next, consider if you have an open drive bay on your computer and want an internal drive or would rather get

an external drive that you can connect to a FireWire or USB (Universal Serial Bus) 2.0 port. External drives have the advantage of portability and are easy to connect, but they typically cost more. If you do go external, remember that

FireWire provides a higher sustained transfer rate than USB 2.0 and is therefore better for burning DVDs. If you decide to go internal, you can add the recorder as a second optical drive or replace your existing CD-ROM without losing any CD capability.

We've talked a lot about the DVD recorder formats, and now it's time to choose one. Although current pricing shows that dual-format recorders cost from \$30 to \$90 more than the single format drives, dual-format gives you the best of both worlds and hedges your bets against the future demise of either the plus or dash standard. And because the latest dual-format drives match

speeds with the single-format drives, dual-format is a good choice.

If you have a DVD player that's more than three years old and you plan on using your recorder to create your own DVD movies or photo discs, check the DVD compatibility list at DVDR Help (<http://www.dvdrhelp.com/dvd>) and make sure the recorder you're considering will work with your player. Also, keep in mind that if your player isn't compatible, it might be time for a new one.

Finally, your new recordable DVD drive comes with software that turns it from a plain DVD-ROM drive into an actual DVD burner. Make sure the recorder you get includes all the software you need, including a general burning program such as Roxio Easy CD Creator (<http://www.roxio.com>) or Ahead Nero (<http://www.nero.com>), DVD player software such as CyberLink PowerDVD (<http://www.gocyberlink.com>) or InterVideo WinDVD (<http://www.intervideo.com>), and a

DVD authoring program such as Sonic MyDVD (<http://www.sonic.com>) or Pinnacle Expression (<http://www.pinnaclesys.com>). Some recorders even include a video editor and a dedicated backup program.

As of press time, a broad range of quality DVD recorders was on the market, and more were appearing every day. A couple that we've noticed include the Sony DRU510A (<http://www.sony.com>), a dual-format, internal recorder that supports DVD-R (4X), DVD-RW (2X), DVD+R (4X), DVD+RW (4X), and CD-R and RW formats at 24X and 16X, respectively. The current street price is about \$279, and an external version, the DRU-510UL, is available for \$359. On the plus format side, HP (<http://www.hp.com>) has the DVD300i, an internal recorder that supports DVD+R (4X), DVD+RW (2.4X), CD-R (16X) and CD-RW (10X) recording. The street price is about \$179, and an external version, the DVD300e, is available for about \$279. If you're looking for a DVD-R/RW recorder, Toshiba (<http://www.toshiba.com>) offers the SD-R5112, an internal recorder that supports DVD-R (4X), DVD-RW (2X), CD-R (16X) and CD-RW (10X) formats and has a street price of about \$149.

Installing Your Drive

If you purchase an external DVD recorder, installing it is as simple as plugging it into the FireWire or USB 2.0 port and turning it on. In most cases, Windows will recognize the new drive and install the proper drivers automatically or ask you to insert the software CD that holds the driver files.

An internal drive takes a little more effort but is pretty straightforward to install. Most recordable drives include detailed instructions that take you through the process, but there are a few things to keep in mind.

First, always make sure you back up important data before you open the computer case. Better safe than sorry is our motto. Second, as you work inside the computer case, make sure you are grounded with an anti-static pad or wristband that you can purchase at any electronics store, including RadioShack.

Finally, take careful note of your current IDE (Integrated Drive Electronics) configuration. Hard drives and optical drives are connected to the motherboard by two IDE ports, each of which can handle two drives. On the back of each drive is a small jumper you can set to Master, Slave, or CS (cable select). When a single drive is connected, the jumper is set to Master. When two



Organize and edit your family movies, then create your own DVDs for family and friends.

drives are connected, the jumper of one drive is set to Master and the other to Slave. In some newer computers, CS is used, and in that case, both drives should be set to CS. If one of your IDE ports is open with no drives attached, it's a good idea to use it for your new DVD recorder, rather than add the recorder as a Slave with another drive. Having the recorder on its own port can provide a small boost in speed.

Once the external or internal drive is installed and your computer is on,

the DVD recordable drive should appear as another CD drive icon in My Computer and Windows Explorer. At this point, it's just another DVD-ROM drive, until you install the DVD burning and authoring software, which is the last step in the installation process.

On The Blue Horizon

Just as the DVD is starting to replace the CD as the recording technology of choice, two new optical disc formats are emerging. Both are being driven by the large capacity requirements of HDTV (high-definition television), but should also be a boon to the computer industry.

The Blu-ray Disc standard, developed by nine of the DVD Forum members, including Sony, Hitachi, Pioneer, and Philips, uses a 405nm (nanometer) blue laser to squeeze disc data even closer, giving optical disc capacities of 27GB per side and data rates of 9,000KBps, compared to about 5,284KBps for existing DVD-Rs. Sony released the first Blu-ray recording device in Japan in April 2003 and went worldwide with the recorder in September.

The second blue laser technology, called Advanced Optical Disc, comes from a partnership between Toshiba and NEC and has a capacity of 36GB per disc side. The two companies are working with the DVD Forum to develop the full standard and plan on making products available in 2004.

As you might suspect, the two competing blue laser technologies could again cause a format war in the coming years. But for now, sit back and take comfort in knowing that the DVD recorder landscape has finally settled down, and regardless of what's ahead, you can get what DVD recordable has to offer today. ■

BY JOHN LORTZ AND SUSAN LEAVITT

'Tis The Season ...

Welcome to Mr. Modem's Desktop, where each month you'll find an eclectic assortment of digital tidbits and virtual snippets culled from the thousands of items that slither across my modem each month. As we carcen headlong toward the holiday season, may I be the first to wish you Happy Holidays! OK, enough seasonal small talk.

Speaking Of The Holidays...

Keeping track of calories this time of year is—well, disturbing behavior to say the least. Highly trained computer athletes like myself, with six-pack ASCII's and ripped routers, know a better way: Flex on over to the Calories Per Hour Web site (<http://www.caloriesperhour.com>). You'll be both pleased and amazed at the workout you're getting even as you read this column. Enter the activity in which you're engaged, its duration, your age and weight, and you'll learn the number of calories burned and their equivalent in food. For example, did you know that eight hours of computing burns up 791 calories, which equates to 9.9 apples, 3.7 Krispy Kreme glazed doughnuts, or 1.3 Big Macs?

Select your activity from a list that includes everything from accordion playing to Yoga (sorry, no zithers) and even includes Mrs. Modem's favorite pastime, Anishinaabe Jingle Dancing. Am I a lucky guy or what?

Selective Printing

Have you ever wanted to print one item from a Web page or other document but ended up printing the whole enchilada instead? You can save time, ink, paper, and stress by printing only selected morsels. To do this, use your mouse to select (highlight) the text you want to print, then press CTRL-P or click File, Print. Either one will launch the Print dialog box, which is geekspeak for "little window with buttons and tabs and stuff." In the Print Range section, click Selection, followed by OK.

A Flash From The Fridge

Swedish appliance manufacturer Electrolux announced plans to converge a refrigerator and a digital camera. Besides the ability to take really cool pictures (insert rimshot here), each time you close the refrigerator, a built-in digital camera takes snapshots of what's inside and then uploads the frosty photos to a server. Then, if you're at the grocery store doing your holiday shopping, you can use your video-enabled cell phone or PDA (personal digital assistant) to take a peek inside the fridge and determine if you need to purchase any myrrh.

"Yo, Bro, It's Mr. Mo!"



Anybody over the age of 15 is clueless when it comes to comprehending the delicate subtleties of rap lyrics. Even groovy hep cats like Mr. Modem can't keep up, "yaknow-whatt'msayin'?" The Urban Slang Dictionary (<http://www.urbandictionary.com>) is "off the heezy" and thus an excellent resource. I recently had occasion to look up the phrase

"shizzle my nizzle" and learned that it's a derivative of "fo' sheezy mah neezy," which instantly provided the insight, perspective, and clarity I was seeking. CAUTION: This dictionary is not for children, nor for individuals who are easily offended. Sociologically, it's fascinating; linguistically it's frightening.

Pulverizing Pop-ups

There are few things that perturb me more than pop-ups. I don't care if they're ads or update notifications, I just don't like things popping up at me. Through the years, I've tested and reviewed scores of pop-up blocking software, some better than others, but the purveyors of pop-ups always seem to be one step ahead of the pop-up preventers. My favorite technique for dispatching pop-ups is a simple one but one that's frequently overlooked: ALT-F4. The next time a pop-up appears on your screen, quickly press ALT-F4, and it will instantly close. If you continue to press the ALT-F4 combination, you'll close *all* open windows. With a little practice, you'll be able to zap pop-ups as quickly as they appear. It's actually kind of fun.

It's Your Turn

That tidies up the Desktop for this month, but remember, I want to hear from you. If you have a favorite computer tip, if you made an astounding Web site discovery, or if you've got a juicy piece of high-tech gossip, email me at MrModem@smartcomputing.com. If your submission is selected for publication, you'll receive a thick, luxurious, official Mr. Modem mousepad. Your mouse will be eternally grateful.

From Mrs. Modem and myself, wishing you a happy, healthy, and high-tech holiday season! ■

BY MR. MODEM

Mr. Modem (Richard Sherman) is an author, syndicated columnist, radio host, and publisher. Mr. Modem's Weekly Newsletter provides personal responses to subscribers' computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit <http://www.MrModem.com>.

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Are You Ready For Liftoff?

Keep Pace With The Expanding Universe At RedNova

"Space, the final frontier..." If these words inspire a tingle of excitement that arises from more than just their association with 30-some years of "Star Trek" reruns and spinoffs, then strap in because this month we have a site likely to pull you in faster than a black hole.

At RedNova (<http://www.rednova.com>), you'll find the latest news about everything between the troposphere and the Tarantula Nebula. Not to short-change anyone whose vision tilts closer to terra firma, there's plenty of earth-bound science and technology, capped off with some of the most awe-inspiring photography in the solar system.

The RedNova home page reminds us of a bright, vibrant newspaper, dominated by the day's featured story, with a prominent illustration and the first teaser lines of the full article.

Below this a trio of thumbnails displays the Image Of The Day. Usually giving you a satellite's eye view of features and conditions on earth, plus some of the most exotic skies and real estate within telescope range. These alone are worth dropping by for on a daily basis. Click a thumbnail, and you'll advance to a larger view with commentary on how the photo was taken, as well as information about the terrain, atmospheric phenomenon, or celestial formation you're ogling. For even more of an eyeful, click this larger photo to open a window containing the photo in a full-frame size.

Atop the home page, beside the RedNova logo, headlines for current news stories flash in an ongoing rotation. If one grabs your interest, click it to jump to the full story, but be quick;

each headline lingers for about six seconds. Below this area is an unassuming little data field for the site's search engine. In our experience, the results were always grouped according to the type of item the entry links to: Images first, then News Items, and finally entries in the Education/Reference Library.

Down the right side of the home page, the rest of the day's major headlines are divided among the site's three major categories of Space, Science, and Technology. Keep scrolling down and you'll run into a few quickie items: a Quiz, a Poll, and the Quote- and Fact-Of-The-Day.

As much as you can access directly from the home page, it's really just the showroom. The tabs spanning the page beneath the logo will lead you into a deep reservoir of content.

Stay Up To The Nanosecond

To stay informed on discoveries and breakthroughs of all kinds, click the News tab. This will start you with space-related news, the first of six divisions ranked across the News tab's own submenu bar.

Space, of course, brings together breaking stories concerning all that lies beyond Earth, as well as the logistics and theories of its exploration. Science, on the other hand, is a more generalized area where you'll find items about research and developments that may affect your life in the near future ("Scientists Create Edible Food Packaging") or shed light on your ancestral past ("Early Human Settlement Site in Pennsylvania Debated"). Technology covers the gadgets and infrastructure that may already be part of your everyday life, or that you wish you could afford to add.

Moving on, the Sci-Fi section is the place for pop culture, including movies, television, and video games with science or fantasy trappings. And if you've ever enjoyed the syndicated "News of the Weird" column, you should find Oddities of interest, with its slant toward the more skewed happenings of modern life or just plain silliness ("Man Eats Burger

case you want to add it to your space-age Jetsons pad.

The Wonders Of The Universe

They say that a picture is worth a thousand words. RedNova's Images section ups the ante considerably.

You'll land here when you click the home page's Image Of The Day link, although that's a bit of a misnomer because each day actually serves up three images: one of Earth, one of Mars, and one of somewhere else in the universe. If you get hooked on these, but then miss a day or two, scroll down the page to catch up with links to the past few days' photos, as well as the full archives.

For extended sessions of awe and wonder, however, try the Gallery. Here you'll find a tremendous collection of photographs shot throughout our solar system, plus compilations from NASA missions and various observatories, etc. Particularly stunning are the more than 100 images from the Hubble Space Telescope, which has extended our vision into distant galaxies, letting us see wonders that surpass the most grandiose creations of science fiction.

Don't mistake the Yours link for a tool to archive your favorite pix; it's a gallery of member-contributed photos.

At press time these sections are only partially implemented, although a good foundation has already been laid down.



You've probably seen these star-incubating pillars in the Eagle Nebula before. But can you ever see them enough? This shot and many other jaw-droppers taken by the Hubble Telescope await you in the Images Gallery.

For a crash course on a variety of topics, try the Education section's Reference Library. It uses the same framed format as the Image Gallery; however, when you click a topic in the left-side list, the central area will display subtopics rather than an image. In general, these are encyclopedic entries that provide an excellent overview of their subjects. For instance, with Constellations, you not only get hard data about the stars themselves, but also their significance in ancient mythology.

If your interests in space and science have ever left you feeling like the odd geek out around those with attention spans stuck on the fluff cycle, there's the Community area, where you can use the message forums to connect with others who will know what you're talking about.

By the time you read this, RedNova should have added a number of enhancements to these and other areas that were not available to us at press time. In the Community area, the developers intend to add tools such as an address book and a calendar. They also plan to add an option for users to select their own skins for the site's look.

An online store should also be up and running. Click the Shopping tab and you'll be able to peruse a selection of gadgets and space memorabilia.

Finally, RedNova will be implementing In The Classroom, which is an educational partnership with NASA designed to provide lesson plans for kindergarten through 12th grade. One of the most serious failings of the United States' education system is that our students, on average, test much lower in science than the students of other industrialized nations. RedNova and NASA fault a lackluster curriculum and hope to improve it with an approach that will spark greater excitement.

RedNova just might be onto something. The enthusiasm we encountered at RedNova made us feel like wide-eyed kids again. ■

BY BRIAN HODGE

FACT SHEET

RedNova.com

Even measured by the accelerated timescale of the Web, which can make dog years seem lengthy, RedNova.com is still just a baby. The site has been around only since this past May 23, but with 20,000 pages of content and growing, it's one big baby indeed.

RedNova is the brainchild of Eric Ralls, who at age 32 is young enough to have spent his entire professional life online. In 1998, he launched a science Web site called Cosmiverse, which was later taken over by its investors and ultimately joined the many casualties of the great dot-com crash. With a few changes in his business model, Ralls is back with an even more ambitious site, motivated each day by a passion for discovery that he says he was born with.

"I just love waking up and finding out what's new on the horizon," Ralls tells us. "It's captured my imagination since I was old enough to realize what was going on in the universe."

Ralls has faith that millions of others share his enthusiasm, citing NASA's experience in 1997 with the Pathfinder mission to Mars. Although the Web was in its infancy then, during the week that Pathfinder was sending back data, NASA's site received 1 billion hits to view the pictures of our nearest planetary neighbor. Yet despite public interest, Ralls says that science and technology have been under-served on the Web and that when little-known issues, such as stem cell research, suddenly become matters of public debate, people need a reliable source of information.

So far, Ralls' faith has been validated beyond his most optimistic hopes. Since RedNova went live, its traffic has grown exponentially. In August, after just three months, the site attracted nearly 2.5 million visitors, numbers that Ralls wasn't expecting for a year. ■

Get The Plan From The Scanner Man

Wayne Fulton is not a scanner salesman, nor is he a personal tech-support department. He's just a guy who wants to help folks new to using flat-bed scanners get them up and running fast. His site is called Scan Tips (<http://www.scantips.com>), and it's the kind of Web site he claims he was looking for when he started using a scanner. More than 200 printed pages long, Wayne's site goes all the way from the fundamental concepts of scanning to somewhat advanced tips for restoring old photos and faded slides.

Tune Up Your PC At Pitstop

PCs, maybe even more so than cars, need a lot of tune-up TLC. So if your hard drive has the knock-and-pings, and you're getting sluggish performance or frequent crashes, pull in

to the free PC Pitstop (<http://www.pcpitstop.com>). The "mechanics" at this site run your computer through 13 tests, from the standard disk fragmentation analysis to spyware and in-memory virus checks.

It's Not What You Say, But How You Say It

The American Rhetoric site (<http://www.americanrhetoric.com>) is a massive celebration of the power of speech. Forget the image of a grumpy, old, gray-haired guy with a ruler trying to teach the importance of language. Everything here is clever, rich, and loads of fun. Just look and listen at Rhetorical Figures In Sound, which has 38 different figures of speech illustrated by more than 200 audio clips from literature and pop culture sources: Seinfeld using a simile and Vince Lombardi using polysyndeton. Plus, it has



Listen to and learn from the power of speech when you head to American Rhetoric and check out the Top 100 American Speeches and more.

a list of the Top 100 American Speeches (many in streaming audio), classic movie speeches, and a special section on The Rhetoric Of The 9-11 Attacks On America.

... But What If Nobody Says It?

Maybe we're just inspired by the classic Island of Misfit Toys from the old "Rudolph the Red-Nosed Reindeer" TV special, but your faithful Web Tips have washed up on the shore of the Island of Lost Words. Actually, it's the Forthright's Phrontistery Compendium Of Lost Words (<http://phrontistery.50megs.com/clw.html>). On this rather arcane Web site, you'll find words in the English language so hopelessly rare that they are all but absent from most dictionaries and the rest of the Web. Maybe this site will help you with the New York Times crossword, though probably not. Either way

it's a brainy diversion for word lovers.

Happy Holidays

This month, some celebrate Christmas around the Yule tree, while others gather with family around the Chanukah menorah. You're probably pretty sure what you're going to be celebrating, but how about taking some time this season, throwing some tinsel on that monitor, and sitting down to explore what other holidays there are? Earth Calendar (<http://www.earthcalendar.net>) is a fantastic and fun holiday resource (although it won't help with gift shopping). From the Feast of the Radishes to the rather bizarre celebration of May 33rd, browsing through the Earth Calendar is a combination of cultural diversity and trivia. The site's slogan is "Celebrate Every Day," and that sounds pretty good to us. We here at Web Tips wish everyone a happy holiday no matter what holiday that may be!

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Get your motor runnin', head out on the (information super) highway, and when your computer needs a tune-up, pull in to the PC Pitstop.

The Online Shopping Bag Is Never Heavy

Coachlight Candle Factory

<http://www.coachlightcandle.com>

If you want to give handmade gifts but don't have time to make them, buy handmade gifts. At Coachlight Candle Factory, add a personal touch to its hand-poured candles by selecting the recipient's favorite scent from the extensive list. If you don't recognize a scent, browse the Fragrance/Color Chart to read fragrance descriptions. (Sorry, no scratch 'n sniff stickers.) You can learn more about Coachlight Candle Factory's candle categories (such as its stench-like Smoking Smoke Out/Odor Out candles) by clicking Our Candles, Descriptions.



eCardica

<http://www.ecardica.com>

eCardica has hundreds of free static and animated cards for dozens of holidays and events. You don't need to sign up for an eCardica account to browse the categories and view cards, but you will need to sign up to send cards and take advantage of eCardica's extra features. An eCardica account includes an online Address Book, a Calendar, and a Reminders feature. eCardica also lets you use any digital picture (as long as it is smaller than 100KB) as an ecard.

FTC Holiday Shopping Tips

<http://www.ftc.gov/bcp/online/edcams/holiday>

Most veteran Internet shoppers buy presents online every year without running into any more trouble than a back-ordered gift, but inexperienced shoppers should be cautious when shopping at new online stores. If you're not sure what to look for, stop by the FTC

(Federal Trade Commission) Web site. The Holiday Shopping Tips page has several holiday-oriented articles with general shopping tips and a Consumer Publications section with articles about specific items and scams. If you donate to charities, look at the tips for avoiding illegitimate charities. You can also find several articles in Spanish. You'll need to download Adobe's Acrobat Reader (free; <http://www.adobe.com>) to read certain articles.

Hammacher Schlemmer

<http://www.hammacher.com>

If your neighbor has more holiday lights than you again this year, take the competition to a new level by hanging Hammacher Schlemmer's 12.5-inch-tall Larger Than Life Christmas Lights from a nearby tree. Hammacher Schlemmer, which carries unusual gifts, such as the Luxury Automobile Office Chair and the Roomba ProElite vacuum cleaner robot, devotes a section to holiday gadgets. You can find plenty of potential

gifts, including holiday music boxes and Fiber-Optic Christmas Snowflake Stockings, but don't forget to treat yourself; that Pre-Strung Lighted 6-foot Tree means less cleaning after the holidays.

igourmet.com

<http://www.igourmet.com>

Great hosts always have Buffalo Milk Yogurt for holiday get-togethers. If you're out or need other fine foods, look at igourmet.com. The Web site breaks its broad selection into several categories, including Cheeses, Sauces/Spreads, and Desserts/Sweets, and displays pictures of every delicacy. If you can't find the right gifts, try igourmet.com's Gift Finder, which lets you search for gifts by price, or browse the site's Serving Tools section. Choose from Cheese, Connoisseur, Coffee, and Tea Gift Of The Month Clubs.

Old World Nutcrackers

<http://www.oldworldnutcrackers.com>

Chances are, the nutcracker enthusiast in your family already owns each of the characters from the Nutcracker Ballet. If you need to find unusual nutcrackers, visit the Old World Nutcrackers Web site, which has a large selection of nutcrackers (including the cast of the Nutcracker), German Smokers, and other wooden decorations. You can also find several snow globes, including our favorite: the Penguin Snow Globe.

Popcorn Papa

<http://www.popcornpapa.com>

If you're planning to send popcorn gifts this holiday season, take a look at Popcorn Papa's popcorn tins. The artwork on Popcorn Papa's tins ranges from peaceful pictures of scarves, teddy bears, and snowbound villages to a cow wearing a wreath (the famous Holly Cow). Once you select a tin, you can pick as many as three popcorn types from a list that includes butter, cheese, and caramel, and a few unlikely flavors, such as banana, strawberry, and watermelon. Popcorn Papa can ship the popcorn and a short message in bags or in 2-, 3.5-, or 6.5-gallon tins.

That's NEWS To You

Finding the appropriate Usenet discussion group to match your interests can be a monumental task. So each month, we scour tens of thousands of newsgroups and highlight ones that delve into popular topics. If your ISP (Internet service provider) doesn't carry these groups, ask it to add the groups to its list. This month we're starting a craft project and buying a few CDs.

alt.music

If you want to learn more about your child's favorite bands before buying CDs, or if you're not sure where to look for the CDs, post a message on alt.music or one of its many branches. Users who are new to Usenet can find alt.music groups that focus on a particular category or artist by visiting <http://groups.google.com> and typing alt.music in the search field. Google will display a list of all alt.music groups.

rec.crafts.misc

Craft enthusiasts trade tips and tricks about everything from craft-friendly power tools to making a doll from a mop head at alt.crafts.misc. If you're having trouble finding the right component or instructions for your project, browse the latest threads or post a question. Users who can't answer your questions will often post links to helpful information on craft-related Web sites. If you'd like to buy crafts or sell your own, post a message on rec.crafts.market place.

Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month we feature highlights from our pickings. This month we help you organize your Web site accounts and holiday cards.

Easy Password Manager 2.0

<http://www.passwordmanager.co.uk>

If you've shopped online before, you know that most online stores require you to register before paying and that each has its own rules for usernames and passwords. If you find yourself scratching usernames and passwords on scraps of paper as you move from one online store to the next, consider using Polygon Enterprises' Easy Password Manager. The program encrypts and stores each account's information. When you are ready to log into a Web site's account, you can double-click the Password Manager icon (which resides in the System Tray), select the appropriate account from the Password Manager window, and then drag the information to the Web site's fields.

Easy Password Manager also includes Form Filler, which closely resembles the Password Manager window. It stores your personal information (it can also store information for multiple users). You can add information to the Web form by clicking AutoFill or by dragging each field to the appropriate field on the Web form. You can try Easy Password Manager free and register it for \$19.99.

Holiday Card Organizer

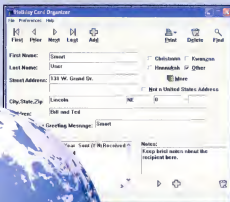
<http://www.nsbp.com/gsf>

If you send greeting cards or family newsletters to family and friends during the holidays, use Goldman Software Farms' Holiday Card Organizer to keep track of your recipient addresses from year to year. The program also lets you indicate the recipient's holiday. You can back up your recipient list and greeting card information to your hard drive or other media.

The program also lets you write a greeting for your message card. The trial version of Holiday Card Organizer includes up to 20 recipient entries but cannot print message cards. You can register the software (to unlock the features) for \$20. You can register via a PayPal (you'll need to sign up for a free PayPal;

<http://www.paypal.com>) account or by mailing a check to Goldman Software Farms.

If you accidentally sent Grandma a card twice last holiday season, use the Holiday Card Organizer to keep track of your holiday mail.



GoToMyPC™

Like being there.



GoToMyPC is the fast, easy and secure way to access your PC from any Web browser in real time.

Fast and instantaneous access to all your emails, files, applications and network resources.

Easy to install (2-minute, one-time setup), manage and work from anywhere.

Secure and powerful end-to-end AES 128-bit encryption to protect all remote connections.

Access Your PC from Anywhere

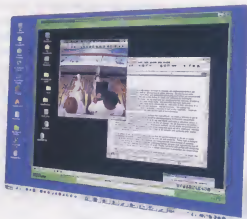
Why GoToMyPC Web-Based Remote Access?

GoToMyPC provides you with all the capabilities of standard remote access plus the convenience of accessing your PC from any Internet-connected computer or wireless device. Unlike with other remote-access solutions, you install GoToMyPC just once on the PC you want to access – no additional software is required. GoToMyPC is the fastest, easiest and most secure solution for accessing your PC from anywhere.



**"The remote-access
star is GoToMyPC."**

PC World, July, 2003



For your free 30-day trial, visit:

gotomypc.com/smart

or call (888) 666-3310. (You must type in the full URL to receive this offer.)

GoToMyPC™ also offers enterprise solutions for remote access. As a managed service, GoToMyPC Corporate™ can lower costs, instantly Web enable applications and fully control end-user security settings. GoToMyPC Corporate delivers the security, reliability and scalability today's enterprises require. For a complimentary evaluation of GoToMyPC Corporate, call (888) 666-1680.

Desktop System

COMPILED BY KEVIN SAVETZ

For Gamers & Movie Mavens Dell Dimension 8300

Here's a sweet machine that will stave off upgrade-itis for a long time to come. Dell's Dimension 8300 packs a wallop of features and blazing-fast speed into a staid-looking black box, and your \$3,387 buys you one heck of a machine. If that price is too steep, you can use Dell's custom-configuration system to whittle it down to something more manageable: less than \$1,000.

If you go whole-hog, you get a 3.2GHz Pentium 4 processor with 1GB of memory, a fast 200GB hard drive, and two optical drives. In the top bay there's a 16X DVD-ROM drive. In the bottom, a DVD+RW drive—perfect for burning CD-ROMs or making your own DVDs from home videos. The system comes with all the software you'll need to do it, including CyberLink Power2Go, Sonic MyDVD, and Dell Movie Studio, running on Windows XP Home. The software bundle also includes WordPerfect Office and an image-editing application.

If it's the little things that send a shiver down your spine, you'll be positively shuddering to see that the

Dimension has eight USB 2.0 (Universal Serial Bus, Hi-Speed) ports and a full complement of video output jacks: VGA (Video Graphics Array), S-Video (Super-Video), and DVI (Digital Visual Interface). You'll need that DVI slot to connect the super-sharp 18-inch LCD (liquid-crystal display). A top-of-the-line ATI RADEON 9800 Pro graphics card with 128MB of DDR RAM (double-data-rate RAM) drives that monster monitor.

That rumbling you hear could be your heart going pitter-patter, but more likely it's coming from this PC's sound system. The Altec Lansing 4.1-channel audio system includes a subwoofer and puts out 95 watts of power. The impressive Sound Blaster Audigy 2 sound card runs the show.

You won't need to upgrade this machine for quite some time, but when you do, there's plenty of room to grow. You can install 2GB of RAM. The spacious case has two empty PCI (Peripheral Component Interconnect) slots and room for three more hard drives. Floppy drives are passé, so the system forgoes the floppy drive for a USB memory key. For a dollar more you can opt for a floppy drive instead, but the memory key holds about 16 times as much information. ■



ms



For Home & Office Use

Velocity Micro Vector VX

you can see inside the sexy box. The colorful, full-tower case leaves plenty of room for expansion with space for 3GB of memory, four PCI cards, and four more hard drives. Plus, there are six USB 2.0 ports, a FireWire port, and a respectable NVIDIA SoundStorm integrated audio system. You can add a 19-inch CRT (cathode-ray tube) monitor, 5.1-channel Surround-Sound speakers, and the Audigy 2 sound card and still be under two grand. But that might be overkill if you're just using Excel and playing the occasional game of The Sims.

The Vector VX includes WinXP Home, CyberLink PowerDVD, and Nero for burning CD-RWs. The PC comes with a binder that bundles the documentation, driver CDs, and software in one convenient place—a nice touch. Another welcome touch: The tech support line is open 24 hours a day, seven days a week.

You can certainly find a PC that's more tricked-out than this one, but not for this price. For the home or office user who wants a fast and capable PC on a budget, Velocity Micro's Vector VX is the one. **I**

We went a little crazy custom-configuring the Vector VX at Velocity Micro. An AMD Athlon 2.2GHz processor, 512MB of DDR memory, a 120GB drive, an ATI RADEON 9800 video card, a CD-RW (CD-rewritable) drive, a DVD-ROM drive, and a heavy-weight power supply. All in all, these are downright impressive specs for a home or office system. After all of our hardware additions, we were stunned to see the price of \$1,534. That number is surprisingly low for such a speedy, well-outfitted PC.

The case is available in a veritable rainbow of colors: black, blue, green, yellow, or silver; each with a clear side panel so

For The PC Enthusiast

Maingear F131

Maingear is a small manufacturer, but it's passionate about building PCs. Its zeal is evident in the F131. If you invited your geekiest friend to custom-build a dream PC for you, this might be what he comes up with.

The coolness starts with the case: The system is built in the CoolerMaster Wave Master TAC-T01, with brushed aluminum curves that make it look more like a stealth fighter than a computer. Inside there's a 3.2GHz Intel Pentium 4 processor and 1GB of RAM, upgradeable to 2GB.

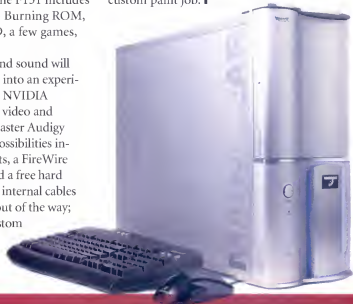
The specs are better than you might guess: There's Gigabit Ethernet, a 420-watt power supply that could power a rural community, and two speedy 120GB hard drives using the latest Serial ATA (Advanced Technology Attachment) technology. The company's fervor is reflected in this system's

configuration: The two drives are configured as a striped RAID (redundant array of independent disks) array for maximum speed. You can opt for a mirrored RAID configuration, which means you always have a perfect backup of your data. To help fill those drives with software, the F131 includes WinXP Home, Nero 5 Burning ROM, InterVideo's WinDVD, a few games, and other goodies.

The system's video and sound will turn any game or DVD into an experience to remember with NVIDIA GeForce FX 5900 Ultra video and Creative Labs Sound Blaster Audigy cards. The expansion possibilities include four USB 2.0 ports, a FireWire port, four PCI slots, and a free hard drive bay. The system's internal cables are folded and tucked out of the way; Maingear calls this "custom origami wiring."

All this costs \$3,128, but

Maingear's custom configuration system will let you scale back or add more goodies until it's the perfect PC for you. In addition to the usual processor and RAM options, you can choose a different motherboard, case, or power supply. Or you can opt for a custom paint job. **I**





For Graphics
Gateway 700CXL

The Gateway 700CXL, \$3,540, is a killer PC with features and ultimate speed that make it especially appealing for users who work with graphics and video. If you live in Photoshop or want to digitally edit your indie film, this is the machine. With a 3.2GHz Pentium 4 processor and 1GB of memory, upgradeable to a mind-boggling 4GB, this system's horsepower can't be beat.

There's 500GB of storage in two fast, 250GB Serial ATA hard drives. You can have the drives preconfigured in a striped or mirrored RAID. Graphics mavens will be positively wowed by the glorious 18.1-inch LCD monitor, driven by an NVIDIA GeForce FX 5900G Ultra graphics card. You can save your creations for posterity using the DVD±RW recorder and CD-RW burner.

The peripheral train doesn't stop there. There are eight (count them, eight!) USB 2.0 ports, two FireWire ports, a Gigabit Ethernet port, and three free PCI slots;

there are plenty of ways to attach video cameras, scanners, and other tools of the trade. If you need music while you do all that graphics work, you'll be glad to know that the sound system is a SoundBlaster Audigy 2 and Boston Acoustics 5.1-channel speakers, which pump out 345 clear (and loud) watts.

If your printer, digital camera, MP3 player, scanner, and other gadgets use removable media, you'll be smitten with the 700CXL's front-panel media bay. With slots for CompactFlash, SmartMedia, Memory Stick, MultiMediaCard/Secure Digital cards, and Microdrive, you can insert any removable media and access it as you would a hard drive.

To help you get started, the system includes an exceptional users guide, a 244-page book to teach you to create digital movies, movie-editing software, plus a handful of blank CD-R (CD-recordable) and DVD-R media. WinXP Home runs the show. ■

What's The Best Value?

Today, you can buy a new PC for as little as \$300, but the cheapest PCs are often lacking in features most users have come to expect, such as a monitor and Microsoft Windows. For a reasonably configured PC at a reasonable price, the Velocity Micro Vector VX is our pick. Less than \$2,000 will buy you a well-stocked computer with a huge monitor, plus outstanding speakers and video. Or, you can configure a budget version. For \$1,158, the company will build a PC with a 1.67GHz AMD Athlon processor, 512MB of RAM, a 120GB hard drive, two optical drives, and your choice of 15-inch LCD or 17-inch CRT monitor.

No matter what specific manufacturer or model you pick, you'll get the best value by using the company's custom-configuration features to your advantage. Simply by removing or scaling back features that you won't use (perhaps you can use a slower processor or don't need a modem, for instance) you can shave hundreds of dollars from the bottom line. ■

Contact Information

Dell
Dimension 8300
\$3,387
(888) 799-3355; (512) 338-4400
<http://www.dell.com>

Gateway
700CXL
\$3,540
(800) 846-4208; (605) 232-2000
<http://www.gateway.com>

Maingear
F131
\$3,128
(877) 398-3248; (973) 522-0010
<http://www.mainegear.com>

Velocity Micro
Vector VX
\$1,534
(800) 303-7866; (804) 897-6166
<http://velocitymicro.com>

PDA's

COMPILED BY SASCHA SEGAN

Power Packed Palm

Sony CLIE PEG-TG50

Sony's powerful CLIE handhelds often blur the line between PDAs (personal digital assistants) and tiny notebooks. But its \$349 CLIE PEG-TG50 is the consummate Palm, bringing the Palm OS to a new level of power and convenience.

Sleek, slick, and slender, the silvery TG50 wouldn't look out of place in a high-end executive's briefcase, but it's not all about show. The 200MHz processor and Palm OS 5 operating system means the TG50 can do things you're not used to seeing from a Palm device.

Pop in a Sony Memory Stick, and the TG50 can play MP3s, organize photos, and play movies. With its included Bluetooth networking and a Bluetooth-enabled mobile phone or PC, you can surf the Web with the best browser we've seen on a handheld. The included Pictel Viewer zooms in on Word, Excel, and Acrobat documents. You can even download TV shows from a Sony PC to the handheld to catch up on your soaps on the train.

The TG50 has another thing you don't often see on low-end Palms: a keyboard. Although the keys are tiny, they're helpful for writing emails. (You can download a free utility if you want to scribble on the screen rather than type.) The razor-sharp, 320 x 320 screen displays Web pages and Word documents with admirable crispness.

The TG50 admirably marries style and power, and its speedy processor opens up new realms of multimedia software that weren't available on the previous generation of Palm OS handhelds. If Palm is your pleasure, this handheld will satisfy you. **I**



PocketPCs For Everyone

Dell Axim X3

Dell's products are all about affordable power, and the company's Axim X3 handheld is no exception. If you're looking for a PDA with the latest Microsoft software, the Axim will run Pocket Word, Excel, and Internet Explorer just as well as handhelds that cost \$100 more.

At 4.9 ounces and a little more than half an inch thick, the Axim is slim, light, and cheap. Prices start at \$199. For that rock-bottom price, you get a perfectly capable little handheld. It has 32MB of RAM, a powerful 300MHz Intel Xscale processor, a built-in microphone and speaker, and a tiny SDIO (Secure Digital Input/Output) expansion card slot.

For a little more money, you get a lot more power: \$299 brings you a 400MHz processor and 64MB of RAM, and \$349 brings you integrated 802.11b high-speed wireless networking. The Axim may not be as sleek or pretty as HP's iPAQ line, but if you wrap the \$100 bill you're saving around your handheld, you get a pretty pleasing look.

Dell's Axim line has brought PocketPC to the masses. With the X3, Dell continues to make power affordable. **I**



Contact Information

Dell
Axim X3
\$199 and up
(800) 999-3355
<http://www.dell.com>

Sony
CLIE PEG-TG50
\$349.99
(877) 865-7669
<http://www.sonystyle.com>

Notebook Comput

A Little Bit Of Power Apple PowerBook 12"

Slender and futuristic, Apple's PowerBook 12" is sure to turn heads wherever you go. But the best reason to move to a Mac notebook isn't the shiny exterior; it's the software deep within.

Apple's OS X operating system is the best software you've never used. Fun to use, gorgeous, and nearly crash proof, it's immune to the viruses you've heard about and runs Microsoft Office just fine. The iLife media suite (iPhoto, iTunes, iMovie, and iDVD) is the best in its class at arranging photos, collecting music, and burning professional-looking DVDs.

The PowerBook 12" is built for travel, with ports on the side and a

relatively small, but razor-sharp screen. It gets about two hours and 15 minutes of battery life if you're playing DVDs and more if you're puttering away on Microsoft Word. No protrusions or extensions mar its perfection: Expansion cards fit inside under the keyboard, and CDs slide in as if swallowed.

The petite Powerbook sits at that intersection of price and power called "value." For \$1,599 you get a G4 processor, a spacious keyboard, a cool slot-loading CD writer and DVD player, and decent video hardware. Spend more and you can pack a DVD writer and super-speedy 802.11g wireless networking into this portable, 4.6-pound masterpiece.

Courtesy Of Apple



Sources tell us that Apple may update or upgrade the Powerbook 12" by the time this magazine hits the street. That's fine with us, as long as Apple keeps the mix of price, performance, and size that makes this machine its best buy. **I**

When Price Is Critical Dell Inspiron 1100

Notebooks should be for everyone. Dell's entry-level model is a no-muss, no-fuss chunk of reliability, with the power to do everything most people need and an unbeatable price.

At 7.22 pounds, the Inspiron 1100 is a bit hefty, but still portable. The



gray and blue case opens to reveal a clear, sharp 14.1-inch screen with a sturdy keyboard. For

\$799, you get a 2GHz Celeron processor (fine for everything up to and including basic home video editing), a 20GB hard drive (fine unless you're doing more than basic video editing), and a CD-ROM drive.

This being a Dell, everything's upgradeable; we'd

suggest going for a CD-RW (CD-rewriteable) drive for \$99 more.

Battery life and performance are surprisingly good for an \$800 machine. If you're not playing DVDs, you might be able to get three hours and 30 minutes of work before the juice runs out. Although the graphics chip and processor won't wow hard-core gamers, they're competent and can deal with modern software.

The Inspiron's star feature is Dell's reliability and service. *Consumer Reports* recently ranked Dell at the top of a group of PC makers when it came to solving users' problems. Dell's machines are known for their sturdiness, and the company's renowned for its good service.

The 1100's startling value is enhanced by the various promotions Dell runs on its Web site. At press time, for example, Dell was throwing in a \$50 discount, free upgrade to a CD-RW, and free shipping.

The Inspiron 1100 won't satisfy every need. It's not light, and it's not a world-class powerhouse. For most home and business tasks, though, it's an absolutely terrific buy. **I**

ers

COMPILED BY SASCHA SEGAN

The Promise Of Centrino

Sony VAIO PCG-TR1A

This year, one of the buzzwords in the world of notebooks was "Centrino," a set of Intel chips that help computer firms make notebooks lighter, lengthen battery life, and add wireless networking to their notebook lines.

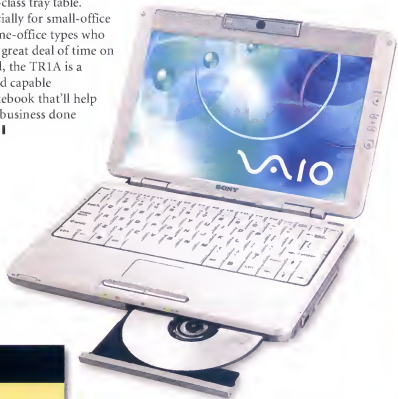
One of the most visually and technologically exciting Centrino notebooks is Sony's VAIO PCG-TR1A. At \$2,199, it's not cheap. But if you're looking for a tiny, travel-sized machine, you won't find many easier on your back.

With its all white case and sleek styling, the TR1A will turn heads. The bite-sized machine weighs a mere 3.11 pounds, but it packs in a range of hot technologies. A video camera built into the top of the screen makes it great for videoconferencing. A CD/DVD combo drive lets you record CDs and play DVDs on the fly, and built-in 802.11b wireless networking lets you hook up to hotspots on the road.

The TR1A is a second machine for road warriors, not a desktop replacement. For one thing, it has a 10.6-inch screen, which

lets it stay tiny but is too cramped for everyday use. The 900MHz processor, meanwhile, gives the machine terrific battery life (as many as 7 hours), according to Sony, and more than three hours in regular use, but the processor may act sluggish with some video-editing software or the latest 3D games. DVD movies, though, will look great on the wide-angle 1,280 x 768 screen, and with a notebook this small, you can open it up on a coach-class tray table.

Especially for small-office and home-office types who spend a great deal of time on the road, the TR1A is a sleek and capable mininotebook that'll help you get business done in style. **I**



What's The Best Value?

A few years ago, \$800 wouldn't have bought you much of a notebook. Now it gets you a solid, reliable workhorse in the Dell Inspiron 1100 that can handle most household tasks. It may be the least stylish and the heaviest of our three choices this year, but it's definitely the machine that most value-seeking buyers should check out.

The Inspiron 1100 features a modern (if low-end) processor, a capable (if low-end) graphics system, and world-class reliability and stability. It's a notebook as an appliance, a box that will do exactly what you expect it to. If that makes you breathe a sigh of relief in this world of geek madness and competing techno-claims, sit back, relax, and pick up this great-value gem. **I**

Contact Information

Apple
PowerBook 12"
\$1,599 and up
(800) 692-7753
<http://www.apple.com/store>

Dell
Inspiron 1100
\$799 and up
(800) 999-3355
<http://www.dell.com>

Sony
VAIO PCG-TR1A
\$2,199
(877) 865-7669
<http://www.sonystyle.com>

Digital Imaging

COMPILED BY CHRIS JACKSON

Pro Features At A Consumer Price

Canon G5

The first camera in our hit parade is Canon's G5. Intended as a successor to the vaunted G3, the G5 straddles the consumer/professional divide with aplomb. But before you head to your local electronics superstore, check your wallet. The G5 will set you back \$899.

What makes the G5 so special? Start with its construction. The G5 combines a magnesium alloy with sturdy plastic, which results in a light yet resilient camera. Next, add a well-designed flip-out color LCD that you can rotate so it's protected from the elements. In addition to the LCD, the G5 also has a status display embedded in the top of the camera for exposure, storage, and flash settings.

Next, the Canon G5 has provisions for all the manual tools

a hobbyist might want. In addition to a full range of autoexposure/autofocus settings, the G5 lets you manually control these settings. And if the built-in flash isn't powerful enough for your needs, the G5 has a traditional hot shoe for mounting a secondary flash.

To take advantage of all these prosumer features, the G5 requires a robust sensor and a sharp lens. With a 5-megapixel CCD (charge coupled device), the G5 is powerful enough for most amateur photographers, provided you don't wish to create gargantuan prints. The

4X lens (optical) has a fast aperture, and accepts telephoto and wide-angle converters. Higher resolutions require spacious storage media, and the G5 accomplishes this with support for CF (CompactFlash) Type I or II cards.

Although the Canon G5 isn't the leader of the pack in any one category, it is an excellent blend of features and performance. Powerful and flexible enough for the budding photography professional, it's easy enough for the casual user to create quality images. **I**



Sleek Styling With Performance

PowerShot SD100 Digital ELPH

Canon's ELPH series of 35mm film cameras has an excellent reputation for craftsmanship, good performance, and compact size. Following this tradition is the PowerShot SD100. Featuring the SD (Secure Digital) storage card, the SD100 is a Lilliputian camera that is easy to carry and use. Less than 1-inch thick, you can conveniently carry the SD100 in a purse or pocket. At a lithe 6.5 ounces, the SD100 sports a stylish stainless steel finish that should shrug off most casual wear and tear.

From a performance standpoint, the SD100 boasts a 3.2-megapixel CCD (charge-coupled device) sensor matched with a 35mm to 70mm autofocus zoom lens. With a 128MB SD card, you could shoot 76 photos at the highest quality setting before having to switch to a second card. The SD100 also features a crystal-clear color LCD (liquid-crystal display) for previewing shots in the camera. With a good antiglare coating, viewing your shots outdoors isn't a problem. If you don't have an SD card reader, the SD100 has a USB (Universal Serial Bus) connector for transferring your images to a computer. An additional feature is a video output for displaying short movie clips.



To make sure the SD100 lasts as long as your shooting session, Canon uses a durable Li-Ion battery. If it runs out of steam while away from a charger, you can easily swap it out with a spare.

The SD100 is targeted at the casual photographer who wants to capture good images without lugging around a duffel bag of gear, or learning the intricacies of the zone system. This is reflected in its well-thought out controls, and its inclusion of a good autofocus/autoexposure system. It even features an auto-orientation system. Take a photo in portrait mode, and it knows to display it properly on both the LCD monitor and on your computer. Available for a suggested retail price of \$499, the SD100 is one of the best ultra-compact digital cameras you'll find. ■

Just The Prints, Ma'am

Canon CP-300



If long lasting, durable, snapshot-sized prints are your objective, you can't go wrong with Canon's CP-300. You send image data to this smart looking printer directly from your camera, without using a computer. Simply connect your digital camera to the CP-300's USB

port and print out the photos you like. The CP-300 won't hurt your back either. This ultra-compact printer tips the scales at 30 ounces and easily fits in a handbag or backpack.

The CP-300 really shines in image quality. Using dye-sublimation

technology, the CP-300 renders great looking prints that are protected from wear and tear by a thin, transparent, protective coating. The CP-300 creates your prints in a respectable amount of time, churning out 4- x 6-inch prints in as little as 85 seconds.

If you want prints that rival photo lab quality, you'll want to try out the CP-300. The only downsides to the CP-300 (and most dye-sub printers) are the relatively small print size and the cost of the custom print paper. If you want larger prints at a more affordable price, you'll probably want to investigate one of the inkjet photo printers we recommend. You should be able to find the CP-300 for approximately \$275. ■

Not Your Father's Kodak

Kodak Pro DCS-14n

To say that Kodak's DCS-14n is the Ferrari of digital cameras is the ultimate in understatement. Although Canon's G5 straddles the consumer/professional divide, the DCS-14n establishes an entirely new category, the Uber-Digicam. This market niche is not for the weak of heart or the light of wallet. With an MSRP of \$4,995 for the camera body, this is a camera that hopes to encourage professional photographers to finally dump their 35mm SLR (Single Lens Reflex) cameras.

The DCS-14n represents the current pinnacle of digital camera resolution, starting with a 14-megapixel CMOS (complementary metal-oxide semiconductor) sensor. This is a

full-frame sensor that lets photographers properly use wide-angle and macro lenses. If you've already invested in a set of Nikon F-mount lenses, you'll be able to seamlessly use them with the DCS-14n.

In addition to an incredible CMOS sensor and lens suite, the DCS-14n is built to a standard that professional photographers expect. The body is constructed of magnesium alloy, with well-thought-out ergonomics. With FireWire outputs, transferring images directly to your computer is a snap. The DCS-14n also uses two types of storage cards: The ubiquitous CF and the MMC (MultiMediaCard).

If money is no object when it comes to your camera purchases,



you'll definitely want to take a hard look at the DCS-14n. If you're like most of us, who can only window shop at Tiffany's, you can rest assured that the outstanding performance exhibited by the DCS-14n will eventually trickle down into the prosumer realm. **I**

Squeeze Out The Last Drop

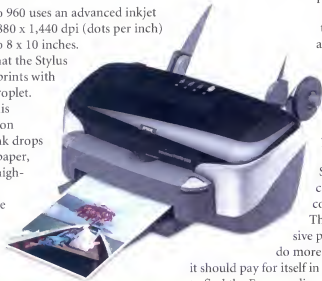
Epson Stylus Photo 960

Epson has consistently delivered quality photo printers, and the Stylus Photo 960 is no exception. With a fistful of features for every occasion, the Stylus Photo 960 may be the one printer you can't do without.

The Stylus Photo 960 uses an advanced inkjet system to create 2,880 x 1,440 dpi (dots per inch) prints in sizes up to 8 x 10 inches. Epson advertises that the Stylus Photo 960 creates prints with a 2-picoliter size droplet.

In plain English, this means that the Epson sprays really tiny ink drops onto your printer paper, which results in a high-resolution print.

In addition to the quality output,



the Stylus is frugal when it comes to ink. Instead of using one color cartridge, you conserve ink with six cartridges because you're replacing only the ink cartridge that you use. Printing color photos requires more ink than printing a simple text document, so savings add up quickly.

Finally, the Stylus Photo 960 can handle almost any media you could imagine using for printing. Whether you're printing on sheet-fed paper or rolled, the Stylus will handle it. You can even print labels and covers for CDs and DVDs.

The Stylus isn't an inexpensive printer, but if you intend to do more than just casual printing, it should pay for itself in ink savings. We were able to find the Epson online for less than \$275. **I**

Function Follows Form

HP Photosmart 7960

HP has a well-deserved reputation for quality laser printers, and its Photosmart 7960 extends this reputation into the inkjet photo-printing realm. From the Photosmart's image quality to its well-thought-out design and construction, HP has thrown down a digital gauntlet to its challengers: Meet our standards or perish.

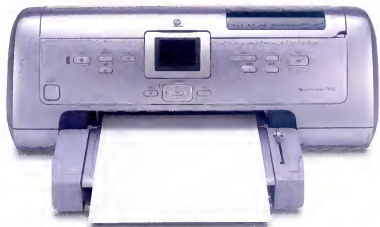
Printers of any sort typically look utilitarian on your desktop, often following the mantra of function determining form.

Fortunately, HP decided there's no reason a printer should be ugly. One look at the 7960, and you'll be enamored of its classy finish that combines a high-tech appeal with convenient controls. Strategically mounted on the front of the 7960 is a 2.5-inch color LCD that lets you preview your prints.

Under its sleek chassis are four memory card slots supporting CF, SmartMedia, SD/MMC, and Memory Stick formats. If you have one of HP's Photosmart cameras, you can print directly to the 7960 with a USB

cable. If you wish to print from a photo-editing program on your PC or Mac, you can use either one of the 7960's USB ports.

When it comes to output, you won't be disappointed in the 7960's print quality. Using a four-cartridge system, the 7960 delivers vivid color with a clarity that can rival many photo labs. Able to handle 8.5- x 11-inch prints, the 7960 is our top choice for photo printers. **I**



Powerful Simplicity

Canoscan 9900F

Scanning can be a tedious process, so it's nice when a manufacturer takes steps to make the process as quick and easy as possible. From top to bottom, the Canoscan 9900F is designed for users who demand quality scans from a variety of media.

This full-featured flatbed scanner provides 3,200 x 6,400 dpi scans that you can transfer to your computer over hi-speed FireWire or USB 2.0 connections. If you have large batches of negatives or slides to scan, you'll appreciate the built-in 35mm film adapter. Capable of holding 24 negatives or eight mounted slides, the 9900F will make short work of scanning your photo collection. If your collection includes large format negatives, the Canoscan can accommodate you.

In addition to superb media support, the Canoscan 9900F features an easy-to-use interface consisting of four buttons. From this control panel, you can scan, copy, email, or save your scan as a PDF (Portable Document Format) file. Canon also bundles an extensive suite of software programs for managing your scans. **I**



Programmable Perfection

Epson Perfection 3200 Pro

Until Canon introduced the CanoScan 9900F, Epson was the preferred leader in mid-priced flatbed scanners. Unwilling to relinquish this role, Epson responded by producing the 3200 Pro Color Scanner. Discriminating users will appreciate the performance Epson delivers at a respectable price.

Featuring 3,200dpi optical resolution, the 3200 Pro delivers crisp, accurate scans of photos whether from prints, negatives, or slides. For maximum color fidelity, you can scan at up to 48-bit depth, though this adds to the overall scan time. To quickly transfer your scans to your PC, the 3200 Pro features both USB 2.0 and FireWire connections capable of transferring files at speeds of roughly 400Mbps (megabits per second).

The 3200 Pro is a well-built scanner, featuring solid construction and intuitive controls. Instead of a plethora of buttons and controls, it uses a power switch and Quick Scan button. You can program this button to initiate a common task, such as to launch a customly used application, or use it as a launcher for Epson's Smart Panel. This application handles the day-to-day tasks associated with scanning in a clear fashion.

Scanning is rarely a fast process, but the 3200 Pro does an excellent job compared to other flatbed scanners on the market. In addition to the speed of its scans, it is amazingly quiet. Epson has engineered high-quality motors for the scanning armature, and this pays off in sound reduction. The 3200 Pro also features a transparency



adapter built into its lid, capable of holding slides and negatives as big as 4 x 5 inches for scanning.

As the hardware side of scanning has matured, the software involved has become more important. EPSON Scan Scanning Software lets you modify and compensate for color shifts, saturation, contrast, and a host of other settings. If dabbling in image settings isn't your cup of tea, the 3200 Pro creates perfectly acceptable scans with its default settings. As with many other flatbed scanners on the market, the 3200 Pro bundles a variety of third-party applications.

Epson is intent on retaining its hold on the flatbed scanner market, and the 3200 Pro gives consumers a remarkable device. The only drawback to the 3200 Pro is its price. Performance doesn't come free, but the \$599 price tag is at the high end of the spectrum. Once you see the results of your scans, you'll understand why many professional photographers are willing to pony up for the 3200 Pro. **I**

What's The Best Value?

It didn't take us long to select the digital camera we felt gave the best value for your hard-earned money. The G5 isn't an inexpensive camera, but it more than holds its own against cameras that cost significantly more. Canon's G5 is a classic example of providing outstanding performance with a discerning eye for detail. Suitable for both the casual photographer and the more serious hobbyist, the G5 has a flexibility that usually corresponds to a much higher price tag. **I**

At Peace With Your Desktop

Visioneer Strobe XP100

If the idea of plunking a large flatbed scanner on your desktop is enough to send you into Feng Shui misery, you'll find kindred spirits in the engineers from Visioneer. With the XP100, Visioneer has shown that size does matter when it comes to scanning.

Targeting both mobile users and cramped desktops, the sheet-fed XP100 is small enough to fit between your keyboard and monitor. Simply connect it to your PC's USB port, and you're ready to start scanning. The XP100 eliminates the need for a power cable (or cumbersome power adapter) by drawing power from the USB port.

The XP100 can't match the resolution of its flatbed brethren, but for typical document scans that will be processed by an OCR (optical character recognition) program, the XP100's 600dpi should be adequate for most users. The tradeoff required by the XP100's small design is that you can't scan books or magazines. ■



Contact Information

Digital Cameras

Canon
PowerShot SD100 Digital ELPH
\$499
(800) 652-2666; (714) 438-3000
<http://www.powershot.com>

CS
\$899
(800) 652-2666; (714) 438-3000
<http://www.powershot.com>

Kodak
Kodak Pro DCS-14n
\$4,995
(800) 235-6325; (585) 726-7260
<http://www.kodak.com>

Photo Printers

Canon
CP-300
\$379
(800) 652-2666; (714) 438-3000
<http://www.usa.canon.com>

Epson
Stylus Photo 960
\$349
(800) 463-7766
<http://www.epson.com>

HP
Photosmart 7960
\$299.99
(800) 752-0900
<http://www.hp.com>

Scanners

Canon
CanoScan 9900F
\$399.99
(800) 652-2666; (714) 438-3000
<http://www.usa.canon.com>

Epson
Epson Perfection 3200 Pro
\$599
(800) 463-7766
<http://www.epson.com>

Visioneer
Strobe XP100
\$199.99
(925) 251-6398
<http://www.visioneer.com>

CRTs & LCDs

COMPILED BY MARK SCAPICCHIO

Big Screen, Little Money BenQ P992

If you need more screen space and a sharper, brighter display than you're getting from the monitor that came with your computer, it's hard to get both for less than you'll spend on the 19-inch (18-inch viewable) BenQ P992.

Menu text is slightly blurry at the P992's maximum resolution of 1,600 x 1,200, but everything looks great at 1,152 x 864. Combined with its 18-inch viewable area, the latter resolution gives you a lot larger workspace than the 1,024 x 768/15-inch viewable combination you get in most 17-inch CRTs (cathode-ray tubes). Fonts, including fonts displayed with ClearType technology, look razor sharp, especially at 10 points or larger, and with a screen this size, you'll often be viewing text at zoom levels

higher than 100%. If you play fast-moving games, you'll notice much less blurring and fewer jagged edges as the background scenery whips around, thanks to a .25mm dot pitch that's sharper than the dot pitch on most standard-issue monitors.

The \$239 P992 has a few budget inconveniences. It doesn't ship with drivers; you have to download them from BenQ's Web site where they're unnecessarily hard to find. By default its brightness is set to 30, and things won't look quite bright enough until you raise it to 50. But these drawbacks are tolerable for a price that's as low as you'll find for a monitor this size. **I**



Nothing Flat About This Panel Samsung SyncMaster 192T

Since we reviewed the SyncMaster 192T in July, it's possible that other LCDs have surpassed its excellent technical specs: 500:1 contrast ratio (upgraded to a mind-bending 750:1), 250cd/m2 brightness, 170-degree viewing angles, and .294mm dot pitch. But it's not likely any have trumped this 19-inch flat panel's style.

Sitting on a desk with its folding base extended, the wide-format 192T looks as futuristic as an LCD can look these days. Collapse the base and tuck it into the monitor's backside, and the 192T is ready to hang on the wall,

which is something you can't do with most other monitors. The 192T is an excellent (if pricey) solution for anyone relegated to a small corner with limited desk space.

As with most larger LCDs, the 192T includes connectors for analog input (via a standard PC video cable) and digital input (via a DVI connector). It includes Samsung's Magic Bright brightness feature, which lets you cycle, with a single button, through three brightness presets: Text (dimmer), Internet (brighter), and Entertain (brightest). And the base includes built-in speakers (although we're not sure how well they function when folded behind the panel for wall hanging).

As usual, high style costs: In this case, it's a \$989 MSRP and a street price in the higher \$700s. If you can live with slightly less style, without the ability to wall hang the LCD but with a perfectly acceptable 500:1 contrast ratio, you might consider the somewhat less expensive SyncMaster 191T (also sold, until recently, as the Dell 1900FP). We didn't review this model but found lots of favorable reviews in online publications and stores. **I**



No-Sacrifice CRT ViewSonic E90f

In February we were pleased with the performance of the ViewSonic E95 but dismayed that it was going out of production. ViewSonic has replaced it with the E90 Series of 19-inch (18-inch viewable) monitors, which includes the E90, the flat-screen E90f, and the E90f+SB with one-touch toggle brightness control.

We took a quick look at the \$259.99 E90f and liked it a lot. The enclosed ViewSonic Wizard software makes installation a snap. The PerfectFlat screen is very easy on the eyes. The tiny .21 mm horizontal dot pitch (.25mm diagonal) makes photos and

graphics pop. Display quality is solid at the monitor's maximum 1,600 x 1,200 resolution and superb at the recommended 1,280 x 1,024. Fonts are sharp at 8 points or larger, and white page backgrounds seem as white as they get in the CRT world. Games display in rich colors and move without blurring or jaggedness.

The E90 has two other features we like: an OSD (on-screen display) lock, which locks any settings changes you make via the monitor's control panel (great if you have kids) and a connection for an optional \$29.95 four-port USB (Universal Serial Bus) hub (handy if you're using the monitor as a second display for your notebook computer). You can even buy a black version of the monitor, the E90fb, to match your black computer or just to look cool. All this comes at a street price about \$20 higher than the BenQ P992, which makes the E90f an easy choice for our Best Value (see the "Best Value" sidebar). **I**

Sun Screen ViewSonic VX900

In a word the 19-inch ViewSonic VX900 is *bright*. White pages are blindingly so. Colors in photographs, Web pages, and even application windows pop vividly out at you, as they seldom do on television or in photos.

Much of this is a function of the VX900's impressive 600:1 contrast ratio and 250cd/m² brightness. Speaking less technically, if you install the VX900 after years of looking at a CRT monitor (any CRT monitor), you might actually have to give your eyes several minutes to catch up.

The VX900 displays its clearest, sharpest text and images at its maximum/optimal 1,280 x 1,024 resolution. At lower resolutions text and pictures remain nearly as sharp with far less than the usual

blurring you see on LCD (liquid-crystal display) monitors at lower-than-optimal resolutions, but the display tends to stretch vertically—a problem because the monitor doesn't have a vertical screen size adjustment. Still, this is nitpicking: After seeing the 1,280 x 1,024 display, you'll not likely want to switch to any other resolution.

As with most larger LCDs, the VX900 has connectors for analog input (via a standard PC video cable) and digital input (via a DVI [Digital Video Interface] connector). In tests we conducted last May, it played both DVD movies and analog television quite well. Also typical of most LCDs, the VX900 tended to blur the backgrounds of fast moving games but balanced that by displaying them in unusually vivid color.

Integrated into the VX900 are speakers that you'll never mistake for surround sound but that sound much better than most monitor-housed speakers. The monitor occupies a scant 7.1 inches of desk depth and tucks its power, video, and speaker cables behind a cord management panel out of your way. At \$869, or around \$660 on the street, it's a lot more expensive than a similarly-sized CRT monitor, but the VX900 clearly demonstrates how much more you can get when you finally make the LCD price leap. **I**

Induce Screen Envy

HP 2025

There are very few 20-inch LCDs in the world, and there are even fewer we'd spend \$1,119 on. We'd make an exception for the HP 2025.

Bright and extremely sharp at its maximum/optimal 1,600 x 1,200 resolution, the HP 2025 performs the rare trick of being just as bright and very nearly as sharp at lower resolutions, too. At 1,280 x 1,024 (and with Windows ClearType enabled), it might well be the most comfortable and legible display we've ever seen. If you're like us, you may find yourself revisiting your favorite Web sites just to see how much better they can look. The 2025's specs list a mere 300:1 contrast ratio, but the display seems at least as bright as LCDs touting ratios of 500:1.

You'd expect a monitor that lists for \$1,119 to include lots of features you won't find in other monitors, and here the 2025 doesn't disappoint. The panel tilts, raises, and lowers with unmatched ease. Its external Auto Adjust button replaces, with a single press, tiresome minutes of scrolling through various on-screen picture adjustment menus. It accepts not only analog and digital (DVI-D) but also S-Video (Super-Video) and composite inputs; a PIP (picture-in-picture) feature lets you watch television while you work. The monitor's 170-degree viewing angles, combined with its preternatural size and clarity, make it perfect for showing presentations, demos, or DVDs to a conference room full of people.

But in the end it's the 2025's bigness, brightness, and sharpness—and not the bells and whistles—that will impress most users. If you can't justify buying a 2025 for yourself, it's still not too late to drop hints to loved ones. A person who spends lots of time at the computer couldn't receive a nicer gift. ■



What's The Best Value?

An excellent value in its own right, the ViewSonic E90f stacks up pretty well against LCDs that cost three or more times as much. Its sharp, high-resolution display gives just a hair less working space at 18 diagonal viewable inches than does an LCD at 19 inches. Its flat screen isn't really as flat as an LCD's, but it's a considerable ergonomic improvement for anyone moving up from a curved, standard-issue display. It can't boast the brightness or vivid color of an LCD, but its sharp dot pitch renders fonts and images just as crisply. And it plays games a little more smoothly in the bargain.

Did we mention that it's one-third the price of a comparably-sized LCD? As much of this roundup makes clear, we're pretty taken with LCD monitors. But as long as they still cost more than most mid-range PCs, we can't quite think of them as values. The E90f is a lot of monitor for the money and an excellent choice as your "one last CRT monitor." ■

Contact Information

BenQ
P992
\$239
(866) 700-2367; (909) 569-0700
<http://www.benq.com>

HP
2025
\$1,119
(888) 999-4747; (650) 857-1501
<http://www.hp.com>

Samsung Electronics
SyncMaster 192T
\$989
(800) 726-7864; (201) 229-4000
<http://www.samsungmonitor.com>

ViewSonic
E90f: \$259.99
VX900: \$869
(800) 888-8583; (909) 869-7976
<http://www.viewsonic.com>



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Storage Devices

COMPILED BY MYLES WHITE

Parallel ATA Hard Drive

Western Digital Caviar WD2500JB
Special Edition 250GB



Our choice for current top Parallel ATA (Integrated Drive Electronics) drive is the Western Digital Caviar WD2500JB 250GB SE. First reviewed in *Smart Computing* in April 2003, two versions of the drive sell from Western Digital's Web site. The \$349 version doesn't include data cable, mounting

screws, jumpers, software install utility (it's a free download, instead), or a controller card. The retail version, for \$50 more, comes with all of those parts and software, plus a Promise Technology Ultra ATA controller card for older computers that can't properly handle drives of more than 137GB. When you register either drive, you may access a free online diagnostic suite at Western Digital's Web site.

With an 8MB cache buffer and advertised 8.9ms read/seek time and 10.9ms write/seek, the 7,200rpm ATA100 drive reads an average of 48.5MBps (megabytes per second) and 60.7MBps maximum. It wrote an average of 27.7MBps (49.1MBps maximum) in our tests, both good figures for a 7200rpm drive. ■

SCSI Hard Drive

Fujitsu MAS3735NP

This year's top SCSI (Small Computer System Interface) drive is the 73GB Fujitsu MAS3735NP. Like most ultra-speed SCSI drives, the MAS3735NP's external dimensions fit into a standard 3.5-inch drive bay, but inside, the four platters are only 2.75 inches in diameter. The smaller surface area, high areal density of 33.1GB per square inch, and the drive's 15,000rpm spindle speed provide snappy performance.

The Fujitsu MAS3735NP SCSI Ultra320 drive with 8MB cache buffer peaked at 67.3MBps average reads (70.7MBps maximum) and 44.9MBps average writes (57.8MBps maximum) on our tests. However, those results were produced using an Adaptec Ultra160 controller. Fujitsu claims 62.5MBps to 79.2MBps sustained transfer rates using an Ultra320 controller. Either way, it's a speedy drive with a hefty price, ranging between \$555 (OEM [original equipment manufacturer] version) to \$718 for the full retail boxed version. ■





Serial ATA Hard Drive

Maxtor DiamondMax Plus 9

The \$349 Maxtor DiamondMax Plus 9 SATA 250GB drive is our choice for the top Serial ATA drive. Although it has the same 7,200rpm spindle speed as the Western Digital Parallel ATA drive noted above, the Serial ATA technology that results in a

150Mbps maximum burst transfer rate, also produces a higher sustained rate (the speed you get most of the time).

Where you test this drive affects the results. We clocked the Maxtor on our first test PC, which had a 2.67GHz P4 with 384MB of DDR SDRAM (double-data-rate synchronous dynamic RAM), running Windows XP Pro SP1 (Service Pack 1), using Maxtor's SATA (Serial ATA) card. Our second system had a 3.06GHz P4 with 512MB DDR SDRAM,

running WinXP Home SP1, equipped with a Si3112 SATA. Results are presented in PC1/PC2 format.

The DiamondMax Plus 9 SATA 250GB racked up read speeds of 67.8MBps/65.9MBps maximum and 48.7MBps/48.9MBps average, as well as write speeds slightly better than the Western Digital drive of 40.7MBps/49.8MBps maximum and 29.3MBps/28.7MBps average.

One of the other things we noted during the review was that benchmark test results, particularly when measuring write speeds, fluctuated wildly depending on which controller we used. That may have something to do with the relative newness of the technology. We recorded more reasonably stable results from a SATA controller embedded in a recently-released motherboard than from an after-market controller located in a PCI (Peripheral Component Interconnect) expansion slot. ■

DVD Recorder

LG GSA-4040B Multi-Format DVD Recorder

The LG GSA-4040B shares many characteristics with the Omega SuperDVD, and it's not surprising because LG is the manufacturer of the Omega product. However, there are some differences. LG makes a distinction among formats when it reports speeds. For example, it writes CD-Rs (CD-recordables) at 24X and CD-RWs (CD-rewritables) at 18X. It also writes DVD+RW at 2.4X, DVD-R at 4X, DVD-RW at 2X, DVD-R at 4X and DVD-RAM at 3X. It reads CD-ROM/CD-R at 32X and CD-RW at 24X.

The DVD speeds are as follows: DVD-ROM 12X, DVD-R/-RW 10X, DVD+R/-RW 10X, DVD-RAM 1X, 2X, or 3X. LG claims the drive sustains a data transfer rate of 16.67MBps and a burst rate of 66MBps. Access times, says the company,

are 130ms for DVD-ROM, 150ms for DVD-RAM, and 110ms for CD-ROM. The \$233.95 drive supports double-sided, single-layer media, and you have to manually turn over the disc, but the 4040B will record on both sides when applicable.

Yet another difference: You can mount the LG drive horizontally or vertically, but you can only play back 8cm CDs (instead of the standard 12cm discs) if you mount the drive horizontally. (Omega doesn't even mention the small-

er medium.) The software bundle is also different and includes B's Recorder GOLD, B's CLiP, B's DVD, DVD-RAM Driver, PowerDVD, Acrobat Reader, and MPEG-2 (Motion Picture Experts Group-2) Software identified only as DVD Playback Software. ■



External/Portable Storage

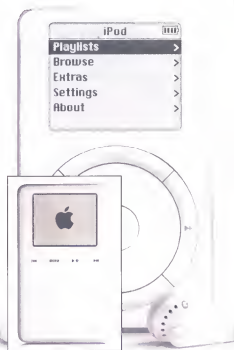
Apple iPod 10GB

Both the Apple iPod and the generic class of devices, called Mini-USB drives, offer ease of use and maximum portability. No matter whether the review was in *Smart Computing* or in other publications, the common theme of iPod reviews is that the product is solidly built and reliable, and current models are also platform-agnostic. It doesn't care whether you start with a PC or a Mac on your desktop; it works equally well with both. The 10GB (\$299), 20GB (\$399) and now, 40GB (\$499) models come with both Mac and Windows software, support both USB 2.0 (with an optional \$19 connector) and FireWire and let you carry literally thousands of songs in your pocket.

The newly revamped iPod doesn't only play music; it will also store an address book, keep a calendar and to-do list, play games (Solitaire, Brick, and Parachute), and even view text files. The third-generation iPod is the smallest yet at just 4.1 inches high x 2.4 inches wide x 0.62 inches deep (0.73 inches deep for the 40GB iPod). It weighs just 5.6 ounces (6.2 ounces for the 40GB model).

What distinguishes the iPod from alternative mini-storage devices, such as Mini-USB drives offered by a number of companies, are speed, capacity, and purpose. Mini-USB drives have less capacity, they're more expensive per GB, and they're slower. Despite being billed as USB 2.0 devices, Mini-USBs are notorious for transferring data at USB 1.1 speeds. It's true that you could pack a half-dozen Mini-USB drives into the physical space occupied by one iPod, but you'd need 10, 20, or 40 of the most expensive Mini-USB drives (at approximately \$298 per gigabyte) to hold as much data as one iPod.

Mini-USB drives let you carry any kind of data in a small format, from system to system easily. In their smaller capacities (starting at 32MB for about \$16.95), they're an inexpensive alternative to floppy diskettes. But they can't play music, act as a pseudo-PDA (personal digital assistant), or substitute as a game player. ■



Original iPod pictured with newer version inset.

Photos Courtesy of Apple

CD-RW Drive

Memorex 52X CD-ReWritable

This year, if recording and rewriting speeds are your primary criteria for getting a new CD burner, we suggest the

Memorex 52X CD-ReWritable drive. It bears a distinct resemblance to the Lite-On CD-ReWriter LTR-52246S 52X/24X/ 52X and the CenDyne Lighting

because all three products are the same components under the hood.

However, the Memorex unit is the most recent of the three and that gave the company time to tweak the CD-ReWritable 52X/24X/52X so that it shaved 28 seconds off Lite-On's 700MB CD-R recording time in our tests (turning in an elapsed time of 2:32 minutes/seconds). It also produced excellent access times: 77ms random and 148ms full-stroke.

Our review unit, received last spring, shipped with Nero 5.5.9.13 recording software, data and analog audio cables, and mounting screws. The drive supports digital audio, but if you can use this audio format, you'll have to supply your own cable. A more recent check of the Memorex Web site indicates that neither the software nor the included cables have changed, even though Nero is now up to version 6.0.

Nevertheless, there is some good news to go along with this note. Since our review, Memorex has shaved another \$40 off its retail price. It's now down to \$59.99. ■



DVD-Recorder Iomega SuperDVD Writer

The Iomega SuperDVD is the second of two DVD recorders we're recommending this year (see the LG GSA-4040B review), both for the same reason: The drives support virtually all of the current consumer DVD recording formats. You'll no longer have to guess which competing format will win the DVD recording standards wars.

The Iomega SuperDVD Writer supports five of the six DVD recording standards, leaving out only the commercial authoring version of DVD-R (DVD-RA), but including the consumer general version (DVD-RG). It also supports DVD-RW (DVD-rewriteable), DVD-RAM, DVD+R, and DVD+RW (DVD+rewriteable), and it records CDs with CD-R or CD-RW media. It also plays back commercial DVDs, all the DVD formats that it records, and both commercial and homemade CDs.

There are two models of SuperDVD Writer. The internal drive fits a standard 5.25-inch drive bay and requires a free power connector and an open connector on the data cable from your secondary ATA drive controller. According to the company, it must be installed horizontally and not vertically. The external model uses USB (Universal Serial Bus) 2.0 and the resulting 480Mbps data transfer speed will be required to give anything approaching satisfactory performance.

How much you can record and at what speed depends on the media you choose for recording. Iomega's drive will record 4.7GB of data on each side

of a DVD, regardless of which media you use. You can use two-sided discs (DVD-RAM or DVD+RW) for a total of 9.4GB; however, like the LG drive, you'll have to manually turn over the disc to record on the second side, and you cannot record on dual-layer discs.

Both SuperDVD Writer models write CDs at 24X, rewrite at 16X, and play them back at 32X. They write DVD+RW at 4X, rewrite at 2.4X, and play back at 12X. DVD-RW speeds are 4X/2X/12X (write/rewrite/read). DVD-RAM speeds 3X (read/write). The company reports no speed distinction between different recordable DVD+R and rewriteable DVD+RW or between DVD-R and DVD-RW. Software includes Iomega HotBurn Pro, Sonic MyDVD 4, Sonic CinePlayer 1.5, Iomega Automatic Backup, MusicMatch Jukebox, and Adobe ActiveShare.

Both internal and external drives have a 2MB internal buffer, a one-year warranty, and come with installation manuals and a blank DVD+RW. The internal drive ships with mounting screws, a two-connector, ATA data cable, and an audio cable. The external drive ships with a USB cable.

Oh, and at \$399, we also liked the SuperDVD Writer's price. **I**



Contact Information

Apple Computer
Apple iPod 10GB
\$299
(800) 692-7753; (408) 996-1010
<http://www.apple.com>

Fujitsu
MAS3735NP
\$718
(800) 692-4686; (408) 432-6333
<http://www.fcpa.fujitsu.com>

Iomega
Iomega SuperDVD Writer
\$229.95 (internal ATAPI); \$329.95
(external USB 2.0)
(412) 690-2100
<http://www.iomega.com>

LG Electronics
LG GSA-4040B Multi-Format
DVD Recorder
\$233.95
(800) 243-0000; (201) 816-2000
<http://www.lgeus.com>

Maxtor
Maxtor DiamondMax Plus 9
\$349
(877) 692-3562; (408) 894-5000
<http://www.maxtor.com>

Memorex
Memorex 52X CD-Re-Writable
\$59.99
(562) 906-2800
<http://www.memorex.com>

Western Digital
Caviar WD2500JB Special Edition
250GB
\$399
(877) 934-6972; (949) 672-7000
<http://www.westerndigital.com>

Input Devices

COMPILED BY JOHN BRANDON



Bluetooth Typing

Microsoft Wireless Desktop For Bluetooth

This Microsoft keyboard has Bluetooth capability for cordless operation as far as 30 feet away from your computer. That's a dream come true for more mobile computing. You can sip lemonade on the couch while you surf the Web, and having cordless input devices means less clutter around your computer.

The keyboard includes some easy-to-use function keys that will help you be more productive. Want to start a new Word document? Just press the NEW key. You can

also control your music player, pop open your My Pictures and My Music folders, and even press a button to either Logoff or Shutdown your computer. There's a handy F-LOCK key if you want to use the normal F1 through F12 function keys.

The installation process is a bit convoluted, though. You have to install the keyboard and mouse software before you can use them, which means you'll need an existing keyboard and mouse. It's something we'll have to live with until a new version of Windows XP becomes available that automatically recognizes Bluetooth devices. **I**

Soft Touch

Memorex RF 7000

Instead of using Bluetooth, the Memorex Wireless EZ Touch RF 7000 keyboard uses RF (radio frequency), which gives you a little less room to roam (about 6 feet in our tests), but has crystal clear reception when you use the keyboard close to the computer. The keyboard is just a bit more rigid than the Microsoft Natural Keyboard. There are function keys for many common Desktop functions, such as advancing to the next

MP3 track in the RealOne Player or opening your Internet Favorites folder.

Our favorite feature, though, is one-button access to Microsoft Office shortcuts. You can press the WORD key, for example, to reprogram the keyboard for using common Word functions, such as Paste or New Document. The dark gray styling of the keyboard is a little less "hip" than the Microsoft and Logitech offerings. **I**



Basic Soft-Touch

Microsoft Multimedia Keyboard



The first Microsoft Multimedia Keyboard appeared on store shelves in late 2002 and started capturing the attention of consumers almost immediately. Basically, this is the wired version of the Bluetooth keyboard from Microsoft. It has many of the same function keys, weighs a bit less, and looks a bit more stylish. The new 2003 version is black,

but it functions exactly as the previous model does.

The Microsoft Multimedia keyboard has the most responsive keys we've ever used. In fact, it may help you type just a bit faster because the keyboard works equally well for speed typists and casual users alike. It's our personal favorite for everyday use when we really need to get something done. **I**



Small Stunner

Microsoft Multimedia Mouse For Bluetooth

The new Wireless Mouse For Bluetooth is weighted nicely to stay planted on your desk, with or without a mouse pad. Actually, you can use the mouse on any surface (we tested it on wood, plastic, and linoleum), which is handy in certain situations.

Our only minor complaint about the Wireless mouse is that there is a

brief pause each time you start using the mouse again as the Bluetooth connection re-engages. It's something you get used to right away, and even come to expect, but initially it makes you think there is something wrong with the mouse. No other mouse is quite as ergonomic, though. It fits comfortably in both small- and larger-sized hands. ■

Microsoft has perfected its optical mouse over the years to the point where you won't even think about whether the mouse is accurately tracking your movements.

Quality Mouse

Kensington StudioMouse Wireless

The Kensington StudioMouse Wireless continues the Kensington tradition of excellence. The device uses radio frequencies instead of Bluetooth, so the wireless range is about 6 feet away from your computer. One advantage to this is that the high-powered DiamondEye optical sensor on the StudioMouse won't consume quite as much battery power as the Microsoft optical mouse and will last for about three days before needing another charge. The base station acts as both a charger and signal broadcaster.

Kensington includes its MouseWorks software for reprogramming the mouse buttons.

For example, you can set one button to paste text or display a reminder when it's break time. You can also press either end of the scroll sensor to go to the end or beginning of your Microsoft Word document.

Most importantly, though, is that this is a Kensington product, the company that has all but perfected the optical mouse for desktop users, making the device highly responsive to quick movements during online gaming sessions and for graphic design. ■



Precise Movements

Logitech MX700

The Logitech MX700 uses a new optical recognition technology that scans any surface at 800dpi (dots per inch), which is double the resolution of most mice on the market (including Microsoft's optical mice). You can use a coffee table, a piece of finished wood, or whatever happens to be lying around your computer (mouse pad optional).

The optical sensor is also 80% larger than other mice, so it scans a larger area.

What all this optical sensing means in practical, daily use is that the mouse responds

faster to your movements and more accurately positions the mouse pointer on your WinXP Desktop. For graphic designers, the increased resolution means you can edit a massive image in Adobe Photoshop and select individual pixels. For business and casual use, it means more precise control over common Windows Desktop functions.

We also loved the Internet Navigation buttons. While browsing, you can press the Back or Forward button to quickly open sites you've already visited. The Quick Program selector button switches between open applications, and the Cruise Control scrolling system lets you move up and down quickly in an open document or the browser. ■





Better Tracker

Logitech Cordless Optical TrackMan

The Optical Trackman is stylistically and functionally similar to the Logitech MX700 cordless mouse because the trackball has the same dark blue and silver coloring and wireless operation. Yet, the large red roller is the distinguishing feature. Instead of using a recharger that doubles as a signal broadcaster, the TrackMan uses standard AA batteries and receives a signal from a small digital radio device. **I**



Button Happy

Kensington ExpertMouse Pro

The Kensington ExpertMouse Pro proves the theory that a good idea can be perfected into an indispensable product. The ExpertMouse has the same optical technology as the StudioMouse but adds some quick-function buttons (along the top of the device that you can use to start applications or access your Internet Favorites), four programmable mouse buttons, and a huge trackball for finger-touch control. The product comes with a translucent wrist rest and connects using wireless RF. **I**

Our Final Input

Computer controls have come a long way over the years. The mouse took about two decades to evolve into an optical device, but it has finally been perfected into an optical and wireless device. Keyboards started out with nothing but the QWERTY layout and some function keys and now seem to have a button for just about every Windows function. Trackballs are now more widely used and not just used by graphic artists.

2003 was an innovative year, and it's hard to predict how these products will improve in 2004; however, we're pretty sure that optical control and wireless connectivity are features that will improve in 2004. **I**

Contact Information

Kensington
StudioMouse Wireless
\$89.99

ExpertMouse Pro
\$119.99
(800) 235-6708; (650) 572-2700
<http://www.kensington.com>

Logitech
MX700
\$69.95

Cordless Optical TrackMan
\$59.95
(800) 231-7717; (510) 795-8500
<http://www.logitech.com>

Memorex
RF 7000
\$79.99
(877) 474-8548; (562) 906-2800
<http://www.memorex.com>

Microsoft
Wireless Desktop For Bluetooth
\$159 (Bundled as the Wireless Desktop)

Multimedia Mouse For Bluetooth
\$159 (Bundled as the Wireless Desktop)

Multimedia Keyboard
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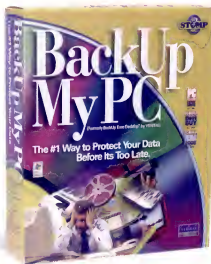
Nov. 20, 2002 BenQ FP591
Hardware, Peripherals

BenQ
Enjoyment Matters

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Software

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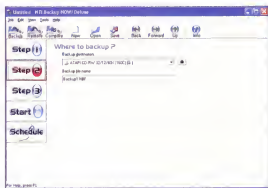
No More Lost Data BackUp MyPC 4.85

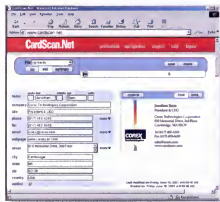
Few people block out spare time to play around with their data backup utilities, but BackUp MyPC does achieve about the highest praise possible for a backup product: It makes preserving data not all that bad. You can ensure information is safe without descending into the minutiae of incremental and partial backups. BackUp MyPC is friendly enough to accommodate beginners who want to stop fretting about their data's safety and dig no deeper. The program's interface follows browser-like conventions and provides wizards that walk you through your

backup setup from the moment you first run the software. BackUp MyPC writes to optical discs, tape, hard drive—virtually any recordable media you care to use—and also works well with networked backups. For the true minimalist, BackUp MyPC even lets you work with a One-Button Backup that covers all the bases. Disaster recovery provisions help you get a system back on its feet after a system meltdown without reinstalling the OS (operating system). Power users will be happy with BackUp MyPC's strengths, as well, as it handles more sophisticated processes, such as comparing file archives to ensure data integrity and password-protecting archives. **I**

Bring It Back Backup Now Deluxe 3.0

The latest version of this backup utility is living up to the line's traditional reputation for ease of use while adding a few new tricks. Backup Now, featuring the EasyStep interface, takes the fear out of backing up with versatile tools for copying and restoring everything from a single file to a complete hard drive image. The new interface's usability has been stepped up a notch, and the program backs up faster than before to CD and DVD. The drive-imaging feature is noteworthy because it's a real lifesaver in the event of a catastrophic wipeout caused by a gnarly software installation, an Internet-borne baddie, or something else out of your control. With an image restoration, your system can bounce back to the way it was, complete with personalized Windows settings. The program makes it a no-brainer to schedule backups to occur when you're away from the PC. You can back up to various types of CDs and DVDs, Zip, or Jazz media, and the new version includes a feature for spanning backups across multiple CDs or DVDs. **I**





Hassle-free Scans

CardScan 6.0.4

All of your great networking at the last cocktail party isn't worth much when the business cards you collected are sitting at the bottom of your desk drawer. But who has time to type all that contact info into a digital Rolodex? You don't need that time with a product, such as CardScan, which works with any TWAIN-compatible scanner (or CoreX's dedicated card scanners, if you're inclined to specialized gadgets) to quickly convert business cards into

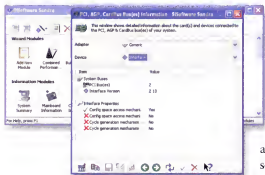
digital contact files. This product category has been around for a while, but CardScan proves there are still ways to boost the category's value. The software does a fine job of reading text from cards and figuring out which information goes into which database field. But "The Latest Big Thing" for card scanning, as with most other software, is Web integration. CoreX's CardScan.Net service puts your scanned contact info online for easy access from any Web-connected PC. The AccuCard service regularly asks your contacts to verify that their info is still current. As long as they don't ignore AccuCard's pleas as spam, this could be the answer to the prayers of anyone vainly trying to keep a contact list current. **I**

Document-Management Powerhouse

PaperPort Pro Office 9

Thinking of PaperPort only as a way to turn printed documents into digital files is like thinking of a modern word processor only as a way to type stuff. ScanSoft's venerable OCR (optical character recognition) package has become a full-fledged document management powerhouse. Take its FormTyper tool, for example. When you scan a form, PaperPort figures out which areas are data fields and creates a document that you can treat as an electronic form to fill in over and over again. The new version's big news is its strong integration with the ubiquitous PDF (Portable Document Format). Without leaving

the PaperPort interface, you can open a PDF document, search for text inside, and edit it. User-friendly tools let you turn existing documents into PDF files directly from Office applications or the Web if you wish. PaperPort also handles other aspects of document management such as sending files to FTP (File Transfer Protocol) sites and doing basic image editing. And, of course, you can search for words or phrases in any scanned document. **I**



Simple Diagnostics

Sandra

have to stay that way thanks to Sandra. This diagnostic utility tells you everything you want to know about your PC's configuration and operation, and when you need to solve a problem, the easy-to-access reports save hours by getting to the nitty-gritty of your system. The program is set up around various "modules" that pop up when you start the program. Choose a module to get a

report or run a test. Benchmarks can sum up the performance of your CPU, drives, expansion cards, peripherals, and more. Sometimes the program suggests ways to make things run more smoothly, such as pointing out outdated drivers. A listing feature summarizes everything installed on the PC. Sandra comes in versions, including Standard (free for personal use; with 58 modules) and Pro (\$36.99 download and \$48.99 on CD; with 80 modules). **I**

The mysterious inner workings of your PC—those cryptic software settings and hardware areas with code names, such as IRA and UMB—don't

Death To Spies

Spybot Search & Destroy 1.2

Remember the scene in "Minority Report" where billboards change messages to speak to whomever is walking by? That reality may be closer than you think. A growing issue for online users is spyware, which sneaks onto your computer and tracks your activities in order to create a marketing profile that lets merchandisers target your interests. If you're not hip on the thought of strangers recording your keystrokes, take your privacy back with Spybot Search & Destroy. This utility knocks spyware off your system and shreds the actual files that gather info, such as which files you've opened and where you've traveled online. Spybot also watches for suspicious programs, blocking them before they ever get onto your computer. A System Startup feature reports on what's loading up each time you start your PC, which can prove both enlightening and a little scary. Best of all, you get all this security at a great price: free (although the author welcomes donations to help him keep improving the software). **I**

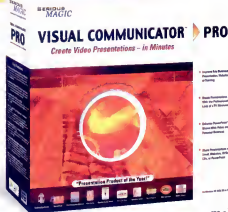
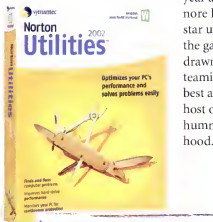


A Sweet Suite

Norton SystemWorks 2003

Maybe it seems like the safe route to pick the big yellow box labeled Norton as a top utility suite year after year, but you can't ignore how this venerable superstar utility stays at the top of the game. The 2003 edition has drawn rave reviews yet again by teaming one of the industry's best antivirus products with a host of utilities to keep things humming under your system's hood. If you're thinking of

buying Norton AntiVirus, which now includes cool new features (such as scanning attachments to instant messages), spend your money here to get the extra tools for housecleaning chores such as deleting old software, tracking down obscure problems in the Registry, and optimizing hard drive storage. The package also includes extras, such as the file-shredding Wipe Info tool, which ensures your deleted files stay that way. All of this is packed into an interface that even nontechnies find friendly to use. One knock some users level against SystemWorks 2003 is that the upgrades in the latest version aren't exactly overwhelming, but if you're looking for your first taste of Norton, this version won't disappoint. (Watch for SystemWorks 2004, on shelves soon.) **I**



Not Your Average Presentation

Visual Communicator Pro

The business world needs more predictable PowerPoint slides like it needs more presenters goofing around with laser pointers. That's what makes Visual Communicator Pro such an exciting addition to the arsenal of the average presenter. With no more skill than it takes to work in PowerPoint, you can create presentations that grab attention with pro-style video content. The software comes loaded with all the little tricks that give your video clips a professional appearance such as text titles, transitions, backgrounds, and music. You just pick a template, click Record, and start talking (or reading from the text you've pasted into the program's on-screen prompter.) The program inserts transitions and other effects as needed. Even presentation software veterans have been surprised at just how easy Visual Communicator makes it to create slick video and place it in presentations or on the Web, CD, DVD, or videotape. **I**

A Compression Standard

PKZIP 6.0 Standard Edition



When PKWare, the company that invented the ZIP file standard, introduces a new version of PKZIP, it's worth more than a passing glance. The latest version of PKZIP, 6.0, is a robust tool for transmitting and storing files in efficient packages, as well as keeping them from prying eyes.

The new BZIP2 compression format is a notable improvement that PKWare says offers a 20% improvement over standard ZIP compression. Beefed-up

encryption technology makes it tougher for snoopers to crack your files. Integration with email programs and Web browsers, as well as the ability to right-click and work with zipped files without actually opening PKZip, makes the handling of compressed files almost transparent to the user. And now that the program supports zipped files larger than a whopping 4GB, you can actually use PKZip for creating compressed backup versions of entire directories, or even drives. A couple of smart features target some familiar daily frustrations. A file spanning feature, for example, lets you split compressed files across several emails to get around attachment limitations, and a browser plug-in lets you stop and resume downloads of files. **I**

We Be Burnin'

Roxio Easy CD & DVD Creator 6

OK, so you don't want to pirate tunes off the Internet, but even law-abiding computing citizens should be in the business of recording their own CDs. It's the easiest way to back up your data, share large files with co-workers, hand out copies of your digital photos, create custom music mixes on disc, and more. That's where Roxio Easy CD & DVD Creator 6 comes in. Here's an amazingly far-reaching collection of tools for managing multimedia files, editing their content, listening to/watching them, and getting them onto CD or DVD in speedy fashion. At the heart is AudioCentral, a lineup of features that bring drag-and-drop ease to burning audio content to disc. This version's most notable new tools, which help you record video content for DVD use, can be a bit rough around the edges.

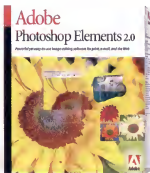
But it's still hard to pass up a collection that provides so many content editing and recording tools for this price. And just in case you're worried about how you'll identify all those discs you create:

Roxio Easy CD includes a Label Creator, too. **I**



Cut To The Chase

Photoshop Elements 2.0



If you frequently complain that software companies load up software with obscure, high-end features just so they can charge more for the new version (and hey, who doesn't complain about this?), Adobe's Photoshop Elements 2.0 should soothe your ire. Here's a package that cuts out the weapons-grade photo-editing features that the pros need, leaving you with the core goodies of the full-fledged Photoshop for a \$99 price tag instead of the \$600 or so the full version costs. Don't think of Photoshop

Elements as a watered-down Photoshop as much as a mainstreamed one. It still offers more tools than you'll probably need to touch up digital images, jazz them up with special effects, combine them with one another into things (such as panoramic views), and prepare them for publishing in various formats. The busy interface is a bit daunting at first, but with a little experience, you'll see that it's smartly designed to keep necessary tools at hand. Some of the features are packaged for simple access, such as Quick Fix, which helps you get right to basic editing tools for red-eye, color correction, contrast, and more. **I**



Paint Shop Pro 8

The most complete photo and graphics editor



Images Transformed

JASC Paint Shop Pro 8

One comparison is irresistible when you're talking about JASC Paint Shop Pro 8: Paint Shop's features are comparable to Photoshop's, yet its price is more like that of Photoshop Elements, with a streamlined collection of Photoshop's

essentials. That makes JASC Paint Shop Pro 8 tough to beat. There are scads of ways to clean up your photos and even compensate for camera lens problems such as fisheye distortion. There's really no excuse for keeping a

bad picture with tools that do things such as help you straighten an image, eliminate unwanted background elements, and magnify one part of an image for emphasis. A variety of scripts eliminate much of the drudgery from detailed jobs. Want to convert an entire directory of images to another file format? Scripts reduce it to one task. Want to transform an image with an artsy effect? Scripts automate that job, too. Paint Shop's huge array of tools makes for a bit of a learning curve, but with a little practice, you'll have amazing power over your images. A new Dynamic Personalization feature makes things easier by letting you assemble and arrange tools into a setup that fits your work habits. ■

Contact Information

Adobe

Photoshop Elements 2.0
\$99
(800) 833-6687; (408) 536-6000
<http://www.adobe.com>

Corex Technologies

CardScan 6.0.4
\$79
(800) 942-6739; (617) 492-4200
<http://www.cardscan.com>

JASC

JASC Paint Shop Pro 8
\$93 (packaged), \$84 (download)
(800) 622-2793; (952) 934-8888
<http://www.jasc.com>

NewTech Infosystems

Backup Now Deluxe 3.0
\$69.99 (download), \$79.99 (CD)
(949) 421-0720
<http://www.ntius.com>

PepiMK software

Spybot Search & Destroy 1.2
Free download
software@spybot.info
<http://spybot.safer-networking.de/index.php?lang=en&page=start>

PKWare

PKZIP 6.0 Standard Edition
\$29.95
(414) 354-8699
<http://www.pkware.com>

Roxio

Roxio Easy CD & DVD Creator 6
\$99.95 (packaged), \$79.95 (download)
(866) 280-7694; (408) 848-5594
<http://www.roxio.com>

ScanSoft

PaperPort Pro Office 9
\$199.99
(800) 654-1187; (978) 977-2452
<http://www.scansoft.com>

Serious Magic

Visual Communicator Pro
\$399.95 Pro
(916) 859.0100
<http://www.seriousmagic.com>

SiSoftware

Sandra
Free; \$36.99 (Pro, download only)
sandra@sisoftware.net
<http://www.sisoftware.co.uk>

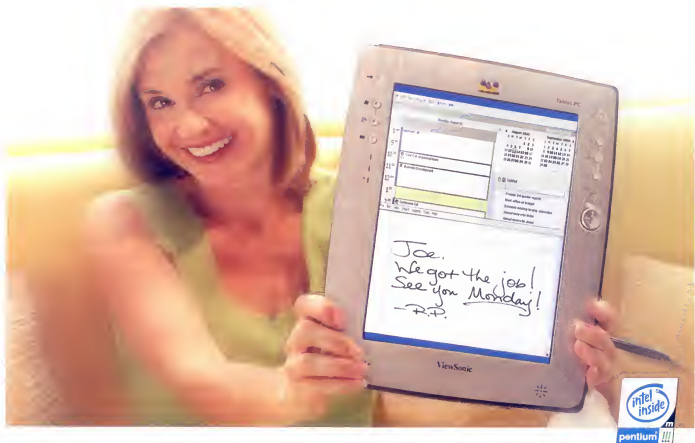
Stomp

BackUp MyPC 4.85
\$69 (download); \$79 (CD)
(866) 713-7700; (949) 442-1060
<http://www.stompinc.com>

Symantec

Norton SystemWorks 2003
\$70
(800) 441-7234; (408) 253-9600
<http://www.symantec.com>

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PC Project:

Say Hello To DVD

Copy VHS Tapes To DVD

We owe VHS technology a debt of gratitude. It lets us record TV shows and capture important moments of our lives. However, VHS does present some serious limitations. Editing requires expensive and

cumbersome tools, and VHS degrades with time and use. DVD technology is conquering the aging VHS world, allowing PC-based capture and editing and recording to affordable optical DVDs. Learn what's needed to convert existing tapes to DVD-R/RW (recordable/rewriteable) media.

VCRs have DV ports, but they're often a feature of current camcorders.

Video Capture Device

Your PC has to capture the video/audio signals coming through RCA (or S-video) connections. This is a potential snag as video capture is an add-on feature, and few PCs come with a suitable capture device. But there is a wealth of capture-capable devices available. If you handle lots of video, invest in an internal video capture card that occupies a PCI (Peripheral Component Interconnect) slot. Internal capture cards usually offer capture and compression features that automatically shrink the capture file size. Some internal cards, such as the ATI ALL-IN-WONDER 9700 Pro (<http://www.ati.com>), integrate video, TV tuning, capture, and more into a single device.

Other video enthusiasts may prefer an external capture device that attaches to the host PC via a USB (Universal Serial Bus) or FireWire port. External devices range from the simple USB Dazzle Digital Video Creator 80 (<http://www.pinnaclesys.com>) to the more full-featured Studio Moviebox DV (<http://www.miro.com>), both from Pinnacle Systems. External capture devices are becoming more popular because of their PC independence and the ability to easily move the device among multiple PCs.

If you're using a DV source, you can usually forego a capture card and

Parts Of The Puzzle

To copy VHS recordings to DVD, you need a video source, capture device, software, a DVD-R/RW drive, and a PC capable of handling it. Video capture/editing can be demanding, and few people have all of these elements in a home PC. Before jumping in, review this list to ensure you have everything.

Video Source

You'll need a platform to play your existing tapes; a VCR or camcorder will work. You probably have a suitable playback platform, but check the available connections. For our purposes, we'll assume the composite VHS signal will be attached to a capture device with standard RCA-type cables. You can improve the video quality by using an S-video cable (rather than the yellow RCA jack) along with the RCA stereo audio connections. Your player and capture device must support S-video.

You'll get the best video/audio source with a DV (digital video) connection, usually a FireWire connection. Few

Learn what's
needed to convert
existing tapes
to DVD-R/RW
(recordable/
rewriteable) media.



The main menu lets you start a DVD project, capture to DVD, or rewrite an existing DVD.

connect the video source to a FireWire port on your PC. If your PC doesn't have FireWire ports, install a multiport FireWire expansion card in a PCI slot.

Destination Drive

Once you capture, edit, and process the video, you'll need to write it to a DVD. You'll need a DVD-R/RW drive. As few PCs come with DVD-R/RW drives, you'll likely need to add one or replace a CD drive with a suitable DVD drive.

Capture/Editing/Burning Software

The hardware is useless without software to tie it all together. The trick is to find software that is compatible with the video capture device and the destination DVD drive. Capture and editing software is generally bundled with the video capture device, so you normally don't need to buy separate software (unless you need advanced features). Verify that the software can write to your selected DVD-R/RW drive.

PC Requirements

Video capture and editing demands ample CPU power and hard drive space. Check your PC specs against the requirements for the capture device and software to ensure your PC meets the requirements.

Video clips can quickly fill a hard drive. Figure on about 100MB per minute of captured video or about 6GB per hour. Files may be smaller with low-quality or compression settings. Video

enthusiasts might add a second hard drive in the 120GB to 200GB range.

Make DVD Magic

There are two approaches to DVD recording: streaming and edited. Both offer benefits depending on your needs. Let's look at both techniques using a Toshiba Satellite P25 2.8GHz notebook with Windows XP and a Matshita UJ-811 DVD-RAM drive. The Dazzle Digital Video Creator 80 USB device handles captures from a video camera. Sonic MyDVD 4.5 capture/editing/recording software came with the P25.

Streaming Video

It's easy to stream your video source to disc. This buffers a stream of video to the hard drive and writes the buffer to the DVD. Streaming is best for copy operations with little or no editing. Here's a typical procedure.

Assemble your recording setup. We attached the capture device to a USB port and attached the RCA cables from the camera to the capture device.

Put a blank DVD in the drive and format it if it needs be. Recording software will often return an error if the destination drive is inaccessible due to missing, incompatible, or unformatted media.

Turn on the video source. Recording software will often return an error when there is no video signal.

Launch the recording software. Make sure the software can recognize the capture device and the DVD drive. Opt to record Transfer Video Direct To DVD.

Choose a menu style, select a project name, and pick the recording device. If your DVD drive doesn't appear, the software doesn't recognize it.

A recording window opens with a video preview and a variety of options. If you're recording from a tape source, start the tape and see that it appears in the capture preview window. Press the Start Capturing button.

Record your video (or let the tape run). Video is buffered to the hard drive, so your only limitations are available drive space and space on the

destination DVD. The limit is usually reflected in the available time shown in the recording software.

When you're finished, press the Stop Capturing button and stop the camera/tape source. The DVD software will process the capture and stream it to disc.

You should be able to play the video with any DVD software. Even though it's easy to make your own DVD, the compatibility of your disc with standalone DVD players can be problematic. DVD-Rs recorded and finalized as a standard DVD project will likely work in everyday DVD players. Media such as DVD-RW may not work with your older DVD player. Some newer players may provide extended compatibility. Check the specs for your DVD player to see which formats are compatible.

Edit Video (Capture/Edit/Record)

If you're a budding director, opt for the capture/edit/record approach. Original video is captured to the hard drive as discrete clips and organized and edited together with software tools. Editing lets you include titles, transitions, music/voice, and more to create a polished overall presentation. The completed presentation is recorded to the DVD when you're ready.

Here's a summary of the basic process. Launch the recording software. Opt for the Create or Modify a DVD-Video Project. This lets you create a new production file. Use the capture function to capture your individual video clips to the hard drive. These clips will remain on the hard drive and provide you with a library of raw clips. Load clips into your production to create a timeline. You can trim clips, insert transitions and effects, add music, and utilize many other features (depending on the editing software you use). When you're finished, insert a blank DVD and burn the presentation to the disc. Save your production timeline and make changes by adding/replacing clips and changing effects. ■

By STEPHEN J. BIGELOW

Quick
Studies

Microsoft Word 2002

Handy Features You May Have Overlooked

You've probably had the experience before; if with not Microsoft Word, then with some other program: You're working alongside somebody else when she suddenly coaxes something from the software you've never seen before.

"What did you just do?" you ask.

"That?" she says. "That's easy!"

And it often is. It's just that programs such as Word, whose development team must work overtime trying to cram in a feature for every conceivable use, eventually end up with neighborhoods you rarely, if ever, visit. This month, we'll spotlight a few such tidbits. After wrestling with macros for the past two installments, you've earned some instant gratification.

Be Considerate Of Widows & Orphans

While typing, have you ever come to the end of a page and noticed that Word can seem indecisive as to where exactly the page break should go? First the break may fall above the line in question, then below it, then back and forth a few times. It isn't that Word is being wishy-washy; rather, it's trying to determine if you're about to make it deal with a widow or an orphan.

A widow is the final line of a paragraph that would, without tinkering, be stranded alone at the top of a page. An orphan is the first line of a paragraph that would be stranded at the bottom of a page. By default, Word is programmed to discriminate against widows and orphans. It will adjust the page break to make sure they don't occur on the assumption that most people will find the page more readable and aesthetically pleasing without these lone stragglers.

If you disagree, or find the practice inconvenient for a particular document, you can override it by selecting Paragraph from the Format menu. Click the Line And Page Breaks tab; under Pagination, deselect the Widow/Orphan Control checkbox. If you want to apply this change retroactively to a multipage document, be sure to select the complete text first; otherwise, you'll only be implementing the change from that point onward.

Keep Your Act Together

As long as we're in the neighborhood, let's have a look at the other Pagination options. These will help

you prevent well-meaning page breaks from separating items that you would rather remain together.

Let's say you have a subhead in an article . . . Keep Your Act Together, for instance. Because it's a complete paragraph, Word will never see it as an orphan. If you want to make sure it remains with the paragraph that follows, while your cursor is somewhere in the subhead's line, click the Keep With Next checkbox. Note that if you've double-spaced after the subhead, you'll need to block select both it and the blank line that follows; otherwise, all you'd be doing is cementing the subhead to the blank line, not the paragraph that follows them both.

You can also make two lines inseparable, as well as ascertain that a page break falls before a particular line. For all of these, you could accomplish the same thing by pressing the ENTER key until the page looks the way you want it to, but if you later add or delete a line from earlier in the document, you'll probably throw this quick-and-dirty fix out of alignment. By using the Pagination settings, you'll ensure that Word retains your intentions.

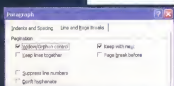
Slap Your Cursor Around

As long as you're working in Print Layout or Web Layout View, you don't need to use the Spacebar or TAB key to place the cursor in a blank area. Just move the cursor where you want it, then double-click. This makes very short work of preparing to drop in some isolated text or an illustration. And if you click in the middle of a page, Word will automatically center whatever you insert.

Undo & Redo In Bulk

Nearly everybody is accustomed to using the CTRL-Z key combination to undo boo-boos (and CTRL-Y to redo them when they don't seem so bad after all). But a lot of people don't realize that, whenever you need to jump back or forth several steps, the Undo/Redo arrows in the Standard toolbar will let you accomplish this in one motion. Click the tiny black triangle beside either arrow to drop open a list of your actions, which lets you see with greater precision what you'll be changing. ■

BY BRIAN HODGE



Use the pagination settings to make sure paired lines and paragraphs don't suffer from separation anxiety.

Quick
Studies

The Print Shop 15 Deluxe

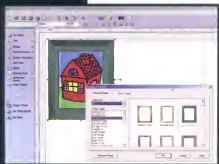
Apply Simple Effects

The Print Shop Deluxe contains hundreds of art files on its CDs, but you aren't restricted to using them as is. For example, you can add a shadow or background glow to a piece of clip art or soften the edges of a photograph for an antique look.

You make these changes with the tools in The Print Shop's Effects menu. We'll show you how to make changes using the first four of these functions.

Me & My Shadow

Let's place a graphic and use the Effects functions to modify it. Create a blank project. Click Art Gallery and the All Art & Photos tab. Select All in the Select Featured Art And Photos drop-down menu. Select All in the Select Type Of Graphic drop-down menu. Pick a category in the Choose Category For Graphic list, click a graphic you like, and click Select. The graphic appears on the project page.



The Apply Frame dialog box lets you apply decorative frames or plain boxes to graphics.

Click Effects, Apply Drop Shadow to bring up

a dialog box. Here you can create a shadow behind the selected graphic, contributing to a 3D effect. Click the Preset Shadows tab in the Apply A Drop Shadow dialog box. The shadow can be applied in four locations behind the graphic.

Click the Customize Shadow tab to change the shadow. Two Shadow Settings slider bars let you change the transparency and edge softness. The amount of transparency determines how light or dark you want the shadow to appear. The lighter the transparency, the more background objects such as graphics or text will show through the shadow. Drag the Edge Softness bar to the left for a sharper image or to the right for a fuzzier one.

Set the color of the shadow. Choose the color by clicking the Color bar. The Color Palette appears. Click More, Define Custom Colors to mix your own color if none suits your needs. Click OK when you are done, and The Print Shop applies the shadow. Click Remove Shadow to get rid of it.

Light It Up

The next function lets you apply a glow effect to the selected graphic, making it appear to have a

light shining from behind it. Click Effects, Apply Radiant Glow with the graphic selected. Click the Preset Glows tab to display the premade glows.

Click the Customize Glow tab to make changes to the premade glows. There are two slider bars that let you change the transparency, as described above, and the thickness of the glow. You can set the color of the glow in the same way as with the shadow above. You can remove the glow entirely by clicking Remove Glow in the Apply A Radiant Glow dialog box.

Add Some Special Effects

Click Effects, Apply Special Effect to open the associated dialog box. The four tabs here are Soft Edges, Special Edges, Outline Edges, and Transparent Effects. Soft edges let you create a plush border around the graphic. There are four selections available, with different degrees of softness at the edges. Special edges alter the edges of the graphics by applying patterns or other effects to them. These are applied to the graphic itself, unlike a frame (which we will talk about below), which surrounds the graphic.

Outline Edges lets you apply a line to the contour of certain types of graphics: Fine Art, Photos, JPEG (Joint Photographic Experts Group), PNG (Portable Network Graphic), and TIFF (Tagged Image File Format). Outline Edges also lets you set the thickness of the line. You determine a color in the same way you did for shadows and glows.

Apply a special effect to the whole graphic with the functions in the last tab, Transparent Effects. Selections include Canvas, Parched, and Rock. Click No Effect to return the graphic to its original state.

Create A Frame

Click Effects, Apply Frame to bring up a collection of decorative picture and plain box frames. Click the Picture Frames tab and choose a decorative frame either by the name on the left or by the picture on the right. Click the Box Frames tab and try out the different selections. The box on the right shows you a preview. You can change the color of the frame by clicking the Color button and selecting another color. Click Remove Frame to revert to the original.

The Print Shop lets you apply interesting effects to graphics. Using them can help distinguish your project even when using generic clip art. ■

BY TOM HANCOCK

Quick Studies

WordPerfect 10

Bulleted Lists

Bullets, those dots or other symbols that mark items in text lists, are a terrific way to emphasize important points. They're particularly useful for listing items in no particular order. You can also embed different levels of bullets within one list to present items in categories and subcategories. Each level can have a different bullet look and indentation.

WordPerfect offers two easy ways to add bullets to your documents: QuickBullets and the more traditional process using the Insert menu.

QuickBullets

WordPerfect's default settings leave QuickBullets disabled. To use the feature, click Tools and then QuickCorrect. Choose the Format-As-You-Go tab and place a check mark in the QuickBullets box. Click OK. This enables the feature.

The QuickBullets feature lets you create fast lists with minimal steps. WordPerfect offers several one-key bullet options. You just type the symbol and then press TAB.

WordPerfect automatically converts that symbol to its corresponding bullet. For example, press plus (+)-TAB to produce a star-shaped bullet.

Place your cursor where you'd like the bulleted list to begin. Type one of the QuickBullet symbols and

With QuickBullets, the symbol plus TAB turns regular characters into fancy bullets.

press TAB. Type the text you need and press ENTER. WordPerfect will insert a new bullet on the next line and take the cursor to the proper indent. Repeat these steps for each new item. When your list is complete, press ENTER again to get to a new line and then press BACKSPACE to end the list.

If you frequently need to use one of the QuickBullets symbols for something other than bullet lists, you can remove it from the QuickBullets list by adding it to the QuickCorrect list under Tools.

Traditional Process

When you want more than a QuickBullet list, try the traditional route using the Insert menu on the toolbar. Click to place your cursor where you want

to start the list. Click Insert and then Outline/Bullets & Numbering to open the Bullets & Numbering dialog box. Click the Bullets tab to see the display of WordPerfect's predefined bullet styles.

Click a bullet style and click OK. When WordPerfect returns you to the main document, the cursor will be next to the new bullet. Type your text and then press ENTER. WordPerfect inserts the bullet on the next line and automatically indents the text. Repeat this step for each item in your bulleted list. When you're done, press BACKSPACE to end the list.

Use the Bullets button on the toolbar to do the same job. Click in the document and then click the Bullets button. WordPerfect places the currently selected bullet style in the document. If you want a different style, click the Bullet button.

Continue to type the text and press ENTER. When you're finished, simply click the Bullet button again to shut the Bullets feature off.

Bullet Existing Text

There may be times when you have already typed a list that needs bullets to set it apart from the rest of the text. To apply a bullet format to existing text, first select the text you want bulleted. Click Insert and then Outline/Bullets & Numbering to open the Bullets & Numbering dialog box. Click the Bullets tab and select the appropriate bullet style from the Description list. Click OK, and it's done.

You can also add bullets to existing text by first clicking the beginning of that line and then clicking the Bullets button on the toolbar. If you want to add body text between bulleted list items, press ENTER twice. Click the Up arrow and then type.

Custom Bullets

Bullet styles can be replaced with a custom symbol. As before, click in the document, click Insert, and then click Outline/Bullets & Numbering. On the Bullets tab, click More Bullets. A Symbols dialog box appears with more items to choose from. Choose a symbol by clicking it and pressing Insert. Click Close to close the dialog box and return to the main window. If you want to peruse the Symbols dialog box before you begin, press CTRL-W.

Whatever method you choose, incorporating bullets makes the most of your lists. ■

By ANNE STEYER PHELPS

Quick
Studies

Marketing Message

- Fill Today's Needs—Today
- Train Your Users in 20 Minutes
- Build A Better Business System



Don't let anyone miss the key point on that critical slide. Grab the electronic pen built into PowerPoint and underline the important stuff.

Microsoft PowerPoint 2002

Control Your Audience's Attention

Everyone knows, of course, that having an audience is far from being the same thing as having its undivided attention. So why do so many presentations seem to be created with the belief that anybody sitting in the room will be glued to the message, regardless of how monotonous it gets?

Of course, even if you pique the audience's interest, your work is just beginning. Now you must direct its attention to the right parts of your message at the right moments to achieve maximum impact. Some of your message is lost, for example, when you let listeners read ahead to the details of bonus pay-

ments while you're still explaining the goals that lead to bonuses in the first place. This month we help you avoid such distractions by looking at some basic tools and techniques that point your audience's attention to exactly the right place.

Master the reveal. Watch late-night talk show hosts for lessons in this technique. Whenever a joke involves a photo, newspaper clip, or video segment, the directors don't show the image until the punch line is thoroughly set up. That way you aren't reading or studying a picture while the host delivers the joke. You can use the same trick by waiting to display a photo or line of text until your spoken words have fully set the stage. The moment new content appears on the screen, your voice becomes background noise for a few seconds. Similarly, you should never reveal several bulleted items all at once. Show one at a time to keep everyone's mind on the point at hand.

Use the blank stare. A well-paced presentation includes key junctures where you need the audience to focus solely on a key spoken point. Don't give them the option of looking at the screen instead of you during this key moment. Press *B* to turn the PowerPoint screen black or *W* to turn it white. Press any key to bring the current slide back onto the screen.

X-and-O 'em. If TV analysts can make sense of NFL defenses with Telestrator scribbles, you should be able to have some fun with the company's new product line by drawing a few marks for emphasis on the screen. While you're running a presentation, right-click, point to Pointer Options, and choose Pen. Use the pointer to add circles, underlines, asterisks, and anything else you want to draw on the slide. To erase your marks, press *E*.

Go in motion. A grand entrance always draws attention, so spend some time developing catchy entries for key text and images on your slides. Click the object you want to animate and choose Slide Show, Animation Schemes. Some of the animations add a stylish touch, such as Elegant, which makes words gracefully appear on the screen. Other effects are more fun, such as Bounce. We can't mention animations, however, without a warning that belongs in most PowerPoint tutorials: Do all things—including animating objects—in moderation. Animation quickly gets tiresome and distracting; a few animated items here and there are enough to draw interest.

Don't fill in the blanks. Handouts are a great tool for helping audiences focus on you rather than feverishly trying to write down long stretches of data. But providing complete copies of your presentation can backfire (at least if you hand them out prior to speaking). With all the information printed in front of them, audience members are free to ponder the 9-iron they blew on the 17th hole yesterday. Leave a few blank lines in key parts of the handout, ensuring that listeners must depend on your words to deliver the rest of the content.

Use body language. Far too many presenters seem to forget that they—and not just the PowerPoint screen behind them—have a physical presence in front of the audience. Use your body language to grab the listeners' attention several times during a speech. Stepping out from behind the podium draws the focus to you. Stepping over to the screen weatherman-style and pointing to an item on the screen connects you to the information and is a great alternative to the erratic laser pointer dots that always point to everything and nothing all at once.

Mix in multimedia. The audio and video files waiting all over the Internet, and the ease with which PowerPoint handles them, are your ticket to at least one jazzy moment in every presentation. Choose Insert, Movies And Sounds to revive your audience after a run of text-only slides. Play a little rousing music behind the slide announcing your business outlook or let corporate officers address the troops via video clips rather than statements you read. This technique not only grabs interest for the information connected to the media clip, but also rouses listeners from their torpor for the next few slides—giving you enough time to work up to the next tactic for capturing their attention. ■

BY TREVOR MEERS

Online

Read News & Blogs With RSS

Quick Studies

Information overload has probably been with us in some form since the Sumerians began churning out cuneiform tablets. It's a safe bet, however, that the situation gets worse all the time. One new way to tame the data flood is the Internet rage, RSS.

What exactly RSS stands for is a matter of some dispute. It could be Rich Site Summary, Really Simple Syndication, or one of a few others; whatever the formal name, RSS makes daily Web reading less of a chore by bringing together your favorite content. Programs called RSS aggregators pull

information from many pages and organize it into categorized lists of links. Think of it as a newspaper about topics you choose penned by writers you like.

RSS is a widely used

standard, with more sites adding RSS feeds all the time. The number of news aggregators that display feeds is large and getting larger. Software writers of the world evidently like RSS, leading many of them to try their hand at putting together a newsreader. The results come in a few different flavors.

Feeding Time

Some programs attempt to bring RSS feeds into your email client with varying degrees of success. Others meld RSS posts with your existing Web browser. A third group simply starts from scratch and shows content in a new program. Much of the software is free; try a search in Google for news aggregators to see a sampling. Many of the better designed tools, not surprisingly, are shareware that sooner or later require some kind of payment.

Generally, aggregators take a two- or three-pane approach. One pane holds categories of feeds and the individual site names. Click a site name, and headlines from that site, often with short descriptions, show up in the second pane. Click a headline, and the full story shows up in the third pane as it would appear in your Web browser.

Feeds are getting easier to find these days. Your RSS program may have an option to search an online database of sites offering RSS content for you. Alternatively, you can hunt on your own by looking for the orange XML (Extensible Markup Language) logo at your favorite pages. It's a small, relatively unobtrusive rectangle with the letters XML. Clicking it usually leads to a page where the different feeds for the site are explained. Right-click a feed link and copy the shortcut or link. Then paste the URL (uniform resource locator) into your RSS program.

Although the email integration format sounds like a logical idea—after all, email clients pull together subject line feeds that you click to read messages—implementation thus far leaves something to be desired. Opening news headline emails, clicking links, and launching new browser windows over and over again leads to a lot of clicks and wasted effort.

One of the best dedicated, free RSS readers we've found is the personal edition of Awasu (<http://www.awasu.com>). Awasu puts together a standard RSS aggregator in an attractive package that works well. FeedDemon (<http://www.bradsoft.com/feed>) is a similar program with a good setup currently available as a free beta; the final version will be shareware.

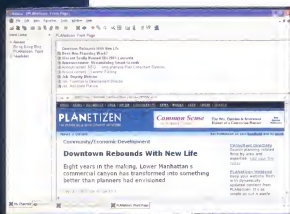
Make Do

When you're away from home, behind a firewall, or otherwise can't use your favorite standalone aggregator, turn to sites such as NewsIsFree (<http://www.newsisfree.com>) or Fyuze (<http://fyuze.com>), Web sites that let you set up customized pages with all of your favorite RSS feeds. Fyuze has nicer, customizable layout options, but it seemed to be a work in progress as this was written.

If you've used pages such as My Yahoo!, NewsIsFree will seem fairly familiar. After setting up a free account, you can customize different pages to hold any RSS feed you like. Many popular sites are listed in a directory, but you can add others. The page can display page headlines in one big column or three columns. Clicking a headline causes your browser to load the page from the referring site.

RSS isn't a miracle, but it is fun to experiment with and provides a useful way for news or blog addicts to quickly scan through their favorite pages. ■

BY ALAN PHELPS



RSS aggregators such as Awasu pull together feeds from various news sites and blogs.

Quick Studies

Microsoft Excel 2002

Trace Your Formulas' Actions

If your spreadsheets do no more than add up columns of numbers, Excel's formula auditing tools won't seem very useful. But if your cells are connected with long, intertwined formulas that pull numbers from all over the worksheet and crunch them into revealing statistics, you'll benefit from a little auditing help. Auditing is also handy when you're asked to analyze numbers in someone else's spreadsheet and you need some guidance on how the figures are compiled.

This article covers some of the Formula Auditing toolbar's tools for revealing how formulas connect cells, making it much easier to see where each cell pulls its information from. To get started, choose View, Toolbars and point to Formula Auditing. (You also can find these tools under Tools, Formula Auditing.)

How Numbers Come & Go

Before you can start revealing number trails by deconstructing how formulas work, you need to understand a couple of basic terms: dependent and precedent cells. Excel defines a dependent cell as one that contains a formula referring to another cell. In a simple example, cell C20 might contain the formula $=B2+B3$. That makes C20 a dependent of B2 and B3.

On the other hand, a precedent cell is one referred to by a formula contained in another cell. In our example, B2 and B3 are precedent cells to C20.

You may need to read that paragraph a couple of times to let it sink in, but once you get the concept, you can start looking for those dependents and precedents. Click a cell that contains a formula and then click the Trace Precedents

Find out exactly which numbers are going into the bottom-line figures by clicking the Trace Precedents button and following the arrows.

button (it has two little blocks pointing to a single block). A tracer arrow pops up to show you which cells are sending data to the formula in your chosen cell. Of course, in complex worksheets, the cells may be like a series of rivers and streams, each drawing its own data from another source. Click the Trace Precedents button again to reveal a second level of

precedent cells. Each time you click the Remove Precedent Arrows button, Excel hides the last layer of arrows. To remove all the arrows at once, click the Remove All Arrows button marked with an eraser.

Tracing dependent cells works the same way with a separate set of trace and remove buttons on the Formula Auditing Toolbar. Clicking the Trace Dependents button a couple of times can reveal some amazing insights, such as just how many bottom-line figures are affected by something such as the price of packing peanuts.

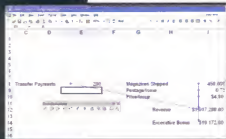
Formulas' Inner Workings

Let's say your spreadsheet is vast enough that you can't see the bottom-line formulas when you're working in the rest of the spreadsheet, but you still want to keep an eye on what happens to projected profits if you adjust the price of packing peanuts. The Formula Auditing toolbar helps you keep the answer in view. Click the Show Watch Window button at the right end of the toolbar. Click a cell containing a value you want to monitor and click the Add Watch button in the Watch Window. The name of your selected cell appears in a dialog box; click Add. You can drag the Watch Window wherever you want as it displays the current value of any cells you've chosen to monitor. When a value changes in a precedent cell pointing to your watched cell, you'll see the value of your watched cell changing in the Watch Window.

Whether you're a hardened numbers geek or a rookie still learning to build formulas, you'll probably find the Evaluate tool to be one of Excel's most educational features. Click a cell, then click the Evaluate Formula button. The window displays the cell's formula; clicking the Evaluate button works through the formula one step at a time. You'll see the order in which the operations happen, making it clear how Excel prioritizes multiplication vs. addition, for example, or operations in parentheses.

As you're rooting out all this information about how cells come up with figures, you'll want to make mental notes about what's happening. Better yet, tag a real note right onto the cell. Select the cell and click the New Comment button on the toolbar. Type a message and click elsewhere in the worksheet. A triangle appears in the corner of the cell to indicate there's a note there. Rest the pointer on the cell to reveal the message. ■

BY TREVOR MEERS



Secrets For Succeeding In Common Tasks

way to use it, you'll have trouble getting started. Tap (with the pen) Start, Get Going With Tablet PC to learn the proper way to use the pen.

McAfee VirusScan

VirusScan has become more aggressive in battling worms such as Sobig.f, which increases the chance of it identifying normal messages as potential worm activity. If you send multiple messages with similar subjects or content, VirusScan displays a message, "Potential Worm Activity Detected!" Don't panic. Look at the subject listed in the box. If it matches the subject line of a message you

sent recently, VirusScan is reacting to a valid message instead of worm activity. Click Continue What I Was Doing to finish sending the message. You may see this warning multiple times, but as long as the subjects show that these are messages you wanted to send, there's nothing to worry about.

Windows XP Startup

If you have installed all of the recommended Windows updates, you may no longer be able to log onto the computer automatically because you must select a user. Follow these

steps to eliminate this need. Using an account with Administrator privileges, click Start, Run, then type control userpasswords2. When the User Accounts dialog box appears, remove the check mark from the Users Must Enter A User Name And Password To Use This Computer checkbox. Click Apply. In the Automatically Log On dialog box that appears, enter the user name and password of

the account you want to automatically log on to and click OK.

Trillian

Trillian is a great IM (instant messaging) application for chatting with friends on different services such as MSN

Messenger, AIM, ICQ, and Yahoo! Messenger. But it is hard to keep track of which Trillian emoticons are compatible with the other services. BigBlueBall.com's Trillian Smileys page at <http://www.bigblueball.com/im/trillian/trillian-smileys.asp> has the answer. It links to five smiley cross-reference pages showing which Trillian emoticons are compatible with each of the other major services.

PDA

If your PDA (personal



Google News Alerts deliver news from several sources about the subjects you care about right to your Inbox.

digital assistant) has built-in Bluetooth or Wi-Fi (802.11b) wireless networking capabilities, you can greatly increase its battery life by disabling the wireless capabilities when you don't need them. Depending on the specific device and the way you use it, your device might run for several days between charges with the wireless networking turned off and only several hours with it turned on.

Internet Explorer 6.0

When you browse to some Web pages with Internet Explorer 6, Internet Explorer may pop up a dialog box asking you if you want to debug script errors on the page. This happens even though in most cases the page seems to work just fine. You can prevent this dialog box from appearing by changing a couple of settings. Click Tools and then Internet Options. Click the Advanced tab and then place a check mark in the Disable Script Debugging checkbox and remove the check mark the Display A Notification

About Every Script Error checkbox. Click OK and close Internet Explorer. The script error dialog box will no longer appear.

Google News Alerts

Keeping track of the latest breaking news stories can be a time-consuming task, even with Google News to help. When you want to read the latest news on a particular subject, and you want it now, Google News Alerts can get the job done. To set an alert for a subject, point your browser to the Google News Alerts page (<http://www.google.com/newsalerts>) and enter the subject you want to track. Select when you want Google to send you alerts, either daily or as they happen, and enter the email address Google should send the alerts to. Click Create News Alert and let Google News Alerts do the rest. Google News Alerts are also helpful in keeping up with your favorite sports teams or staying up-to-date with a competitor in your industry.

BY BILL MANN

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GIFT

☒ (I like to send a gift of [select one])

Windows A-Z

Windows XP, Vista, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

December Web-Only Articles

To Access These Web-Only Articles:

Here's a list of this month's additional articles available to you online as a paid subscriber to *Smart Computing*. To view these articles, click the link in the Web-Only Articles area in the left column of the home page. (Only subscribers can read the complete article.)



Hardware

For all the latest product reviews, visit the Hardware Reviews & Comparison Charts area at SmartComputing.com (<http://www.smartcomputing.com>).



PC Operating Instructions

Linux: Make The Most Of USB Storage

USB storage devices pack a lot of storage into a small space and are perfect for transporting large files between computers. This month, we show you how to get your USB storage device working in Linux and how to make it easy to copy files to and from such devices.



Windows: Safety First

No operating system is exempt from system crashes, and Windows 98 is no exception. Safe Mode provides an environment to troubleshoot and solve problems. We explain what it's all about and how to navigate it.



Software

Graphics Manipulation:
AliveColors

Portable/PDA:
Pilot Install
4.6.1



Quick Studies

..... Lotus 1-2-3
Home On The Range

Email
Create Distribution Lists In
Outlook & Outlook Express

Microsoft Works Suite 2002
Customize A To-Do List

Security
Cover Your Tracks

Microsoft Money 2002
Make Life Easier

.....
Browsers
Familiarize Yourself
With Firebird

Adobe PageMaker
Place Hyperlinks
In PDFs

MGI PhotoSuite 4.x Platinum
Projects For The
End Of The Year

Access
Learn To Use
Filter By Form

HTML
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Adobe Photoshop
A Tool To Speed Everyday
Tasks

SITE GUIDE TIPS

Change Your Password

To change your password, log in and click My Special Features in the upper left. Click Change My Password. Type your old password, type your new password twice, and click Change. Your new password will take effect right away.

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This Month's Feature:

Take A Load Off!

Hardware Reviews & Comparison Charts

With shopping season in full force, skip all that schlepping around, with salespeople breathing down your neck and elbows flying to grab the best deal. Instead, with just a few clicks of your mouse, you can compare many different computing products at your computer with our Hardware Comparison Charts. Read our take on products, find lists of what we consider to be the top five products in each category, compare product features, and more. Our sister publication, *Computer Power User*, provides all hardware reviews. The best part is that you don't have to fight those nasty crowds. So sit down, relax, take a load off, and let the comparison shopping begin.

Product Reviews: Hardware & Software
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Read Hardware Reviews

To read about a particular hardware product, follow these steps:

Click Read Hardware Reviews & Create Comparison Charts on the home page.

You'll see a list of product categories, along with links to the 12 most recent product reviews added to our site. Click a product name to read the full review. To see all products we've reviewed in a category, click the category link, such as Digital Cameras.

The detailed hardware category page will show the *Computer Power User* Top 5 list on the left side. The right side contains links to the products we've reviewed. Reviews are sorted by price and type, manufacturer, and by other specifications.

Click one of the numbers to view the full list of reviews, which will automatically sort by product name.

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 - Laptop Peripherals
 - Laptop Software
 - Laptop Hardware
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 - Server Systems
 - Server Peripherals
 - Server Software
 - Server Hardware
 - Server Accessories
 - Server Peripherals
 - Server Software
 - Server Hardware
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- Networks**
 - Network Systems
 - Network Peripherals
 - Network Software
 - Network Hardware
 - Network Accessories
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 - Network Software
 - Network Hardware
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Click column heading to re-sort the page. To create a comparison chart, click the boxes next to the products desired and then click the Create Chart button at the bottom of this page.

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To take a look at up to five products at a time, you can easily create a comparison chart:

While viewing a full list of hardware reviews, click the checkbox next to the products you want to compare (up to five).

Click the Create Chart button at the bottom of the screen.

To narrow your selections, click the Remove Product button at the bottom of the chart page. The Top 5 Rank line shows where the product is ranked in our lists. The CPU Ranking line shows how many CPUs (out of a possible five) the product earned.

To read a full review, click the link in the Product Name line.

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Hardware Reviews: Desktop Systems: Under \$1,000
Comparison Chart

Product Name	4 CPUs	3 CPUs	2 CPUs	1 CPU
Price	\$599	\$599	\$599	\$599
Top 5 Rank	5	4	4	4
Operating System	Windows XP Home	Windows XP Home	Windows XP Home	Windows XP Home
Processor	1.8GHz Celeron	1.8GHz AMD Athlon XP	2.2GHz Intel Celeron	2.2GHz Intel Celeron
Bus Speed	400MHz	266MHz	400MHz	400MHz
RAM	128MB DDR SDRAM	256MB DDR SDRAM	256MB DDR SDRAM	256MB DDR SDRAM
Hard Drive	40GB	80GB	40GB	40GB
Optical Drive	CD-ROM	CD-RW, DVD-ROM	CD-RW, DVD-ROM	CD-RW, DVD-ROM
Connectivity	Modem, Ethernet	Modem, Ethernet	Modem, Ethernet	Modem, Ethernet
Video Card	Intel G3150	ATI Pro3000	ATI Pro3000	ATI Pro3000
Video RAM	32MB	32MB	32MB	32MB
Monitor	eMachines	eMachines	eMachines	eMachines
Sound Card/Speakers	Integrated Sound, 2 piece	Integrated Sound, 2 piece	Integrated Sound, 2 piece	Integrated Sound, 2 piece
Chassis Type	Mini tower	Mini tower	Mini tower	Mini tower
System Use	Personal Use	Personal Use	Personal Use	Personal Use
System 2002 Office Productivity	80	125	110	110
System 2002 Internet	170	195	200	200
Customer Care				
System 2002 Overall	126	159	151	151
PCMark2002 Pw CPU	4,390	5,007	4,995	4,995
PCMark2002 Pw	7,401	7,720	7,740	7,740
Memory				
PCMark2002 Pw HDD	399	399	399	399
PCMark2002 Overall	875	924	1,041	1,041
Manufacturer	eMachines	eMachines	eMachines	eMachines
Final Word	Affordable low-budget machine with decent connectivity	Affordable system for the whole family	Good machine for those on a tight budget	Good machine for those on a tight budget
Toll-free Phone	(877) 566-3463	(877) 566-3463	(877) 566-3463	(877) 566-3463
Toll Phone	(714) 481-2628	(714) 481-2628	(714) 481-2628	(714) 481-2628
URL	www.emachines.com	www.emachines.com	www.emachines.com	www.emachines.com
CPU Ranking	4/5	4/5	4/5	4/5

[Back to Listings](#) | [Remove Product](#) | [Remove Product](#) | [Remove Product](#)

CPU Ranking (out of possible 5) 0 = Absolutely Worthless 1-3 = Absolutely Average 4-5 = Absolutely Perfect

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Where To Buy

As an added bonus, we'll even show you where to buy some of these products. Next to the Price field within the Comparison chart, you may see a red and white Where To Buy button. Click the button to see a list of up-to-date prices and places to buy the product. Our sister site, <http://www.pctoday.com>, provides the product price listings.

Quick Tips

The CPU Ranking scale is located below the comparison chart (0=Absolutely Worthless to 5=Absolutely Perfect).

0 = Absolutely Worthless

2.5 = Absolutely Average

5 = Absolutely Perfect

We continually review new products and add them to our database as soon as possible. Check the site frequently for the latest additions.

We review more than just the basics. Check the Miscellaneous category for reviews of keyboards, mice, photo printers, and dozens of other products.

Q&A Email Notification

Make use of one of our newest features on the Q&A Board: email notification. From the Q&A Board, click the View Full Question And X Answers (where X is the number of answers) link. Click the Subscribe To This Message link to receive email notification of each answer to that particular question. All your subscribed messages can be seen under the View 'Subscribed' Messages link in the upper right. You can subscribe to as many messages as you choose, and you can unsubscribe at any time.



Find More Online

We can't possibly fit every helpful tip, tweak, or troubleshooting tidbit in print. That's why you'll find a wealth of resources at our Web site, <http://www.smartcomputing.com>. Here are some tips for using our Web site to find more information about the articles in this month's print issue.

Best Products

This month's feature package focuses on The 50 Best Products. Below are some great resources that will enhance the information you're currently reading.

Use the tips in the previous pages to view some of the products mentioned through our Hardware Reviews & Comparison Charts link. Whether you're in the market for a new desktop PC or a digital camera, our reviews and comparison charts give you complete specifications and all the information required to help you make an informed purchasing decision.

Check out the opinions of others on products or write your own review of a product. You'll see a User Reviews link at the bottom of each product review. If other readers have written reviews, you'll see them listed under the User Reviews heading. To write your own review, click Write Your Own User Review (or Be The First To Write A Review Of This Product, if there are no current reviews).

Copy Your VHS Tapes To DVD

This month's PC Project explains how to go about copying your VHS tapes to DVD. For more information on what others have experienced, check out the Q&A Board. To search for related questions and answers, click the yellow Q&A Board box from the home page. Scroll to the bottom of the page and type copy VHS to DVD in the keyword search text box and click Search. Questions and answers that relate to that subject will then appear in order of relevance.

Safe Mode

As you read the PC Operating Instructions article about Safe Mode, you may find yourself wanting even

more information. No problem—just use the Web site resources noted below.

From the home page, click the More button within the yellow Search All Articles box. Type safe mode in the Enter Subject text box and press

Search. Articles related to your subject will appear in order of relevance. To sort by date, click Sort Results By Date at the top of the results page.

At the top of your article search results page, you will also see a link to Q&A Board questions and answers that contain your keywords. Click the link to read about other subscribers' experiences with Safe Mode.

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All About USB

It's The Quick Way To Connect Peripherals

USB (Universal Serial Bus) ports and devices are everywhere today and with good reason. USB cures just about every headache and eliminates nearly every limitation once associated with connecting a peripheral to a PC.

For starters, USB connections are fast. With transfer speeds up to 12Mbps (megabytes per second), USB 1.0 and 1.1 connections are about six times faster than the fastest parallel connections. (Remember them?) USB 2.0, the most recent standard, allows connections a whopping 40 times faster (480Mbps) than USB 1.0/1.1 (which is why it is also called Hi-Speed USB). This means USB offers more than enough bandwidth for external CD, DVD, and hard drives; high-end scanners; and all the other devices that used to require you to open your computer and install a SCSI (Small Computer System Interface) card.

USB transforms plug and play from a market slogan to practical reality. Windows 2000 and Windows XP, in particular, will install most USB devices without any intervention

on your part. (Windows 95/98/NT 4.0 do not support USB; Windows 98SE/Me support USB 1.0 only.)

USB also lets you connect many devices to your computer. A single USB bus can support several USB ports. Many desktop computers today have four USB ports, and inexpensive USB hubs let you split any single port into four or seven or more. But you may not even need a hub because many USB devices include hubs of their own, letting you daisy chain several devices to a single port. For example, most USB keyboards include a hub with at least one USB port to which you can connect a USB mouse—a great solution for notebooks, which typically include a single mouse/keyboard port. By daisy chaining, you can connect as many as 127 devices to a single USB bus (although the practical limit is a dozen or so) without once opening the computer or dealing with the dreaded IRQ (interrupt request line) conflicts that seemed automatic after connecting three or four devices by older means.



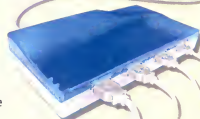
Series A connector
plugs into USB port



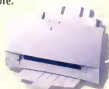
Today, most
desktop computers
have two USB ports
in front and at least
two more in back.



A USB keyboard, which includes a port to
which you daisy chain a mouse, thereby
enabling both to be connected to the
computer through a single port.



A USB hub splits one
USB port into four
or more.



Because USB supports
connections six (USB 1.0/1.1)
to 240 (USB 2.0) times faster
than parallel ports, it allows easy,
plug-and-play connection of high-speed
devices, such as CD/DVD-R/W drives, that used to
require installing a SCSI card.



Device Explosion

USB's easy connectivity and fast performance have enabled whole new peripheral categories. Flash drives, tiny memory devices that plug into a USB port that store data like a hard or removable drive, are the most popular, but more groundbreaking examples abound. Peripheral Enhancement DiskGO! Watch (\$89.95; <http://www.peripheral.com>) is a wristwatch with a built-in flash drive for people who never want to be without the correct time or their most important data. Pacific Digital's DrumXtreme Digital Drum (\$399; <http://www.pacificdigitalcorp.com>) is one of many USB musical instruments you can connect to your computer for use with music-authoring or learning software.

Understanding USB Terminology

While USB makes computing simpler, it has unleashed some confusing terminology on users. You don't really need to understand these terms to use USB, but you may feel more comfortable knowing the following:

USB versions and compatibility. USB 1.0, introduced in 1996, was rarely used because Windows did not yet support USB, and very few USB devices existed. USB 1.1, introduced in September 1998, was the first widely used USB standard, and Win98SE supported it. USB 2.0, also called Hi-Speed USB, is the current version of the standard.

USB 2.0 is backward compatible with USB 1.1, meaning you can attach USB 1.1 devices to USB 2.0 ports, but you won't realize the speed advantages of USB 2.0. You can attach a USB 2.0 device to a USB 1.1 port, but the connection and the device will perform at slower, USB 1.1 speeds. You cannot attach a USB 2.0 device to a USB hub.



Series B connector plugs into most USB devices, such as printers and scanners

Peripheral Speeds. USB 2.0 peripherals operate at three performance levels:

Level	Maximum/Actual Throughput	Maximum Cable Length	Example Devices
Low-Speed USB	1.5Mbps/1.2Mbps	3 meters	Keyboards, mice
Full-Speed USB	12Mbps/7.2Mbps	5 meters	Printers, scanners
Hi-Speed USB	480Mbps/40Mbps	5 meters	External hard drives, CD drives, and DVD drives

Source: PC Hardware in a Nutshell, O'Reilly, 2002.

Note that High-Speed USB refers to the fastest class of USB peripherals, and Hi-Speed USB refers to the USB 2.0 standard.

Ports, cables, and connectors. USB ports on your PC are rectangular and marked with the USB icon. Today most desktop computers have two USB ports in back and two more in the front to simplify connections; notebook computers normally have one or two. USB cables have a Series A connector at one end, which plugs into the computer port and a Series B or Series Mini-B connector that plugs into the peripheral. Keyboards, mice, and other low-speed USB devices usually include their own permanently attached cable with a Series A connector only.

Daisy chain lingo—hubs, functions, and hub/functions. A hub is a device that splits a single USB port into several more ports, not unlike a splitter that splits a single cable TV outlet into several outlets. A hub/function is a USB device that also has a hub to which you can connect another USB device. Daisy-chaining is the process of connecting multiple hubs and functions and hub/functions to a single USB port.



Series Mini-B connector plugs into certain smaller USB devices, such as audio recorders

Defensive Computing Faux Pas

I recently surveyed about 100 of my personal contacts regarding what kind of defensive computing measures they take. I purposely skewed the survey to home users who are *not* computer experts.

I found that most people have antivirus software installed, and most who do also keep it up-to-date with the latest virus definitions. Beyond that, it was no surprise to me that the majority of respondents did little in the way of defensive computing. Those who *did* have defensive computing plans had serious flaws in those plans.

Of course, any defensive computing plan—even a seriously deficient one—is better than none. Even if your plan is imperfect, at least it shows that you care and are trying to maintain your computer's fragile state of unstable equilibrium.

Let's look at the most common defensive computing mistakes my survey identified. In revealing these flaws, I hope to help you avoid the same mistakes.

Backing up *only* your data. Yes, it's very important to back up your data. But it is equally important to back up your entire hard drive: your operating system, applications, and device drivers. Anyone who has ever had to reformat a hard drive and rebuild it from scratch (reinstall Windows, applications, peripherals, and device drivers) knows how difficult and time-consuming a task this is. And with the ever-more restrictive licensing procedures software vendors are implementing, it is becoming an impossible task, unless you want to pay additional money for the privilege of reinstalling an application. (For example, Intuit added a product activation feature to its TurboTax application this year. The feature, which was designed to prevent users from installing the application on more than one machine, enraged customers because it also required users to relicense the software if they had to reformat their hard drives and reinstall it. The alternative, spending hours with Intuit's customer support to resolve the problem, was more costly in terms of time spent and frustration endured than just buying the software again.)

Of course, you could have avoided that problem by making a backup of your hard drive immediately *after* installing TurboTax. Had you experienced a disaster sometime after you installed TurboTax, you could have simply restored your hard drive, thus avoiding the need to reinstall and reactivate TurboTax.

Backing up *only some* of your data. Many who back up their data forget to back up their email folders and messages, email account information, Windows Address Book, and browser bookmarks. And many are unaware that some of the applications

they use store data in folders of the application's own choosing, so just backing up everything in the My Documents folder is an insufficient data backup strategy.

Backing up data to another partition on your hard drive. Backing up your data to a second partition on your hard drive

provides no protection at all against a hard drive failure. It's about as effective as keeping an emergency \$20 bill in your wallet in case you lose your wallet. (I am convinced that some users are just unaware that they are backing up their data to a different location on the same physical drive when they do this.)

Failing to keep an offsite copy of data and system backups. With the rising popularity of home networks, many users back up their data by "dragging" it

across the network to another computer. This is a great idea, but it is not a sufficient data backup strategy because all of the computers in your house are subject to theft or damage by fire or storms. You do *not* have a valid backup strategy unless you also periodically back up to portable media and store the media offsite in a safe deposit box.

Boldly going where no man or woman should go. Many people get a false sense of security from basic defensive computing tools such as antivirus software and a surge protector. Antivirus software isn't perfect. A new computer virus can spread around the world in minutes if it is packaged as an enticing Trojan horse. Your computer may remain unprotected for hours until your antivirus software vendor inoculates it against a new, fast-spreading virus. For this reason, you need to continue to exercise good judgment in opening email attachments even if you have antivirus software installed.

Similarly, a surge protector is not a license to boldly operate your computer during a lightning storm. Even the best surge protector is no match for a direct hit. If a storm is approaching, unplug your Internet connection (your telephone line or coaxial cable) first and then unplug your surge protector to isolate your equipment from all sources of power surges.

Plan, Then Refine The Plan

If you don't already have a defensive computing plan in place, implement one today. If you do have a plan, take some time to re-evaluate it to make sure it doesn't contain any defensive computing faux pas. ■

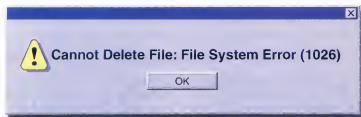
BY ALAN LUBER

Alan Luber is an author and computer expert. His new book, "PC Fear Factor: The Ultimate PC Disaster Prevention Guide" (Que Publishing), provides an in-depth look at disaster prevention and recovery. To learn more about the book or to contact Alan, visit his Web site at <http://www.pcfearfactor.com>.



Examining Errors

What does a Windows user who doesn't keep his computer updated have in common with a bird that doesn't sleep in? They both get the worm. Blaster is here, and at least one of our readers was infected by this new Internet threat. This month we also help readers delete stubborn files, install hardware, and deal with faulty Microsoft software.



The Problem: A reader with a Windows 98 computer transferred some files to his hard drive, but the files became corrupted. Now he can't delete the files because an error message appears every time he tries.

Error Message: "Cannot Delete File: File System Error (1026)"

This error happens for a number of reasons whether a user is copying, moving, or deleting files. Microsoft says the most likely reasons are that the user clicked Undo Copy or Undo Move after transferring the files or that the reader has too little hard drive space left on his drive to perform the delete operation. It's also possible that the files were transferred over a network that was experiencing problems or heavy traffic.

In the first case, making a change to the Recycle Bin will make the error disappear. Right-click the Recycle Bin, click Properties, and remove the check from the Do Not Move Files To The Recycle Bin box. Click OK, reboot, and try to delete the files.

To see if the problem is the result of insufficient space on your hard drive, open My Computer, right-click the icon for your hard drive (usually the C:

drive), and click Properties from the context menu. The pie chart and other information show you how many megabytes or gigabytes of space remain on the drive. You should always strive to have at least several hundred megabytes of free space, preferably 512MB to 1GB on a drive that has 20GB or more of storage space. Uninstall some of the lesser-used programs; copy some of your less-frequently used files to floppy diskettes, CD-R/RWs (CD-recordables/rewriteables), or DVD-Rs (DVD-recordables); and do whatever else it takes, including deleting any emails you've stored, to create enough space for Windows to perform its delete operations.

If you receive this message when copying, moving, or deleting files over a network, double-check your network's security settings and try the operation again when there's less traffic on the network.

The Problem: A reader with Windows Me is attempting to install a printer using the installation CD that came with the device, but the installation process only gets to 67% complete before stalling and generating an error message.

Error Message: "Error 1304: Error writing to file X.inf. Verify that you have access to that directory."

Files that end in the .INF extension are information files, and they're crucial for the installation of hardware. Windows stores all INF files in a single directory, so it knows where to find them, and this directory can hold thousands of INF files. It can quickly fill to capacity because many programs and devices create zero-byte INF files when they're installed. These files are empty but still take up space in the directory structure. You'll need to delete them to make the Error 1304 message go away.

Click Start, expand Search, and click For Files And Folders. Type OEM*.INF in the Search For Files Or Folders Named field, and don't forget the asterisk (*) because it acts as a wildcard. Type C:\WINDOWS\INF in the Look In field, click Search Options, and put a check in the Size box. Select At Most 1KB, check the Advanced Options box, and remove the check from the Search Subfolders box.

Expand the View menu, click Details, and click Search Now. When the search is complete, expand the View menu again, expand Arrange Icons, and click By Size. Scroll through the results list until you find the first 0KB entry. Click the entry to highlight it, hold down the SHIFT key, scroll down to the last 0KB entry, and click that entry. Now all the 0KB entries should be highlighted, but double-check to make sure you didn't select a 1KB or larger entry. Once you're sure that only 0KB files are highlighted, press DELETE and wait for Windows to clear the files out of the INF folder. Reboot and you should be able to install your hardware without triggering the error message.

The Problem: Each time a reader starts her computer, an error message appears. She can cancel the message and get into Windows, but when she reboots, she must again deal with the error message.

Error Message: ".NET Framework Initialization Error: C:\WINDOWS\Microsoft.NET\Framework\v 1.1.4322\Mscorwks.dll could not be loaded"

Microsoft's .NET Framework is software designed to help PCs connect to one another, and many programs rely on it. If something goes wrong with your .NET installation, you'll have trouble. Each version of the .NET Framework is largely incompatible with the last, so this is a rare case where upgrading isn't necessarily a good idea.

A likely scenario here is that the reader installed a program that relied

on version 1.0 of the .NET Framework and then accidentally or otherwise upgraded to .NET version 1.1. The program that needs the earlier version of .NET must be configured to launch when Windows boots. When Windows can't initialize the version of .NET that the program requires, you'll see this error message.

If this error happens on a home PC and you know you don't need the .NET

Framework installed, click Start, expand Settings, click Control Panel, and double-click Add/Remove Programs. In Windows XP click Start and Control Panel and double-click Add Or Remove Programs. Scroll down the list until you find the entry for the .NET Framework and uninstall it. If an important program on your PC requires the .NET Framework in order to run, visit <http://msdn.microsoft.com/netframework> and download the necessary version. To find older versions, such as 1.0, expand the Previous Versions link on the left, expand the entry for the version you want to download, and click Technology Updates. Links appear that let you download the software and any necessary Service Packs.

The Problem: While browsing the Internet using a WinXP computer, a reader sees an error message and her computer shuts down. This also happens on Windows 2000 computers.

Error Message: "System Shutdown: This system is shutting down. Please save all work in progress and log off. Any unsaved changes will be lost. This shutdown was initiated by NT AUTHORITY\SYSTEM. Message: Windows must now restart because Remote Procedure Call (RPC) Service terminated unexpectedly."

This error results from a nasty worm designed to exploit a vulnerability in WinXP/2000's RPC (Remote Procedure Call) components. The worm is named W32.Blaster.Worm (usually called the "blaster worm"). The worm attempts to use an infected PC to launch a denial-of-service attack on Windows Update by flooding that Web site with as many data requests as possible in an attempt to overwhelm the server. The worm can cause the infected machine to become unstable and reboot randomly. Symantec (<http://www.symantec.com>) has developed a free removal tool that you can download at the following Web site: <http://securityresponse.symantec.com/avcenter/venc/data/w32.blaster.worm.removal.tool.html>

Microsoft also has a patch that fixes the RPC vulnerability that you can download by visiting <http://www.windowsupdate.com> or by clicking Start, expanding All Programs, and clicking Windows Update. Microsoft also recommends that all WinXP/2000 users enable a firewall and keep their antivirus software updated and active. If you can't keep your PC running long enough to download the fix, you'll need to use another computer (a friend's PC, perhaps) to download the patch, save it to diskette, and load it onto your system.

Firewalls monitor the connection between you and the Internet, preventing data that was not requested from getting in and making sure data doesn't get out unless you authorize it. WinXP has



a built-in Internet Connection Firewall that's easy to enable but not very powerful or configurable. Click Start, click Control Panel, click Switch To Classic View (if you haven't already), and double-click Network Connections. Right-click the icon that corresponds to your Internet connection, click Properties, and select the Advanced tab. Put a check in the Protect My Computer And Network By Limiting Or Preventing Access To This Computer From The Internet checkbox and then click the Settings button if you want to configure the more advanced options.

We recommend using a more powerful software- or hardware-based firewall if you have WinXP. Zone Labs' ZoneAlarm family of firewalls (<http://www.zonelabs.com>) are among the best available and range from a basic free version to a feature-rich Pro version (\$49.95 for a single user license). ■

BY TRACY BAKER

Have questions about an error message you've seen? Send us your message (errormessages@smarcomputing.com) and we'll try to decipher it. Tell us what version of Windows you're using, give the full text of the error message, and provide as many details in your explanation as possible. Volume prohibits individual replies.

Quick Fixes

Windows 2000

Without this Windows 2000 patch, a cracker may be able to exploit a buffer overflow problem and take complete control of your computer. To download the 917KB file, type the URL (uniform resource locator) below, and from the Product/Technology drop-down menu, select Windows 2000. Click Go, and from the Sort Results By menu, select Date and click Go. Scroll through the list of results and click the link named Security Update For Windows 2000 (KB824146). Click Download, and after the transfer completes, double-click the file to begin installation. ♦

<http://www.microsoft.com/downloads>

Streets And Trips 2004 Construction Update

If you have the 2004 version of Streets And Trips, this 277KB file will update your maps, providing the latest construction news so that you don't get stuck in unexpected traffic. To download the update, type the URL below, type streets and trips 2004 in the Keywords text box, and click Go. Click the link named Streets And Trips 2004 Construction Update. Click Download, and after you save the file, read the instructions on the Web site for installation instructions. ♦

<http://www.microsoft.com/downloads>

Microsoft Office 2000

This update fixes a problem in the way Microsoft Office 2000 uses Visual Basic For Applications to check document properties, and may prevent

crackers from harming data on your PC. To obtain the 639KB file, type the URL below, and from the Product/Technology drop-down menu, select Office. Click Go, and from the Sort Results By menu, select Date and click Go. Scroll through the list of results and click the link named Office 2000 Security Patch: KB822035. Double-click the file you downloaded to begin the installation. Microsoft recommends that you check the Office Products Updates (<http://office.microsoft.com/officeupdate>) site to make sure you need this file. ♦

<http://www.microsoft.com/downloads>

Iolo System Mechanic 4

Iolo released a newer version of System Mechanic with a number of improvements. To download this 5.3MB update, type the URL below and click Get Latest Version!. After your PC saves the file, double-click the icon (named System-Mechanic.exe) to begin the installation. ♦

<http://www.iolo.com/sm/4/updates.cfm>

iPAQ H3900 Series Pocket PC

If you're having trouble using a SecureDigital flash card with an iPAQ H3900 Series running Microsoft Windows For Pocket PC 2002, this driver update may help. The update fixes performance issues, lockups, and card detection problems. To download the new driver, type the URL below, and in the Enter Model Product Number text box, type **ipaq h3900** and press ENTER. Scroll through the list of models and click the link for your

model. If prompted, click your iPAQ's model number again, click the link named Microsoft Windows For Pocket PC 2002, and on the subsequent page, scroll to the Software—System Management section. Click the link that refers to the SD Card Driver Update and click Download. Scroll to the How To Use section for instructions on installing this update. ♦

http://welcome.mcp.com/umanyr/yus/eng/software_drivers.html

Fix of the Month

McAfee VirusScan Update

This update works for McAfee VirusScan Home Edition and VirusScan Professional Edition and improves the program's ability to detect malicious viruses. To download the 295KB patch, type the URL below, and on the left side of the screen, click Product Patches. From the Product drop-down menu, click McAfee VirusScan and click English from the Language drop-down menu. Scroll through the list of files until you see v6.02 with a date of 08/27/03. Read the description, make sure this is the correct patch for your computer, and click the link named CR13398.exe. Save the patch to your computer, and after the transfer is complete, double-click the file to start the installation. McAfee warns that this update is for retail, boxed products. You should not install the file if you are a subscriber of VirusScan, Personal Firewall, or Personal Firewall Plus. ♦

<http://download.mcafee.com/>
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Q & A

Need help with your hardware or software?
Looking for simple explanations on technical subjects?
Send us your questions!



Windows

Q I'm trying to go to Msconfig in order to remove some of the programs from the Startup. When I go to Run and type **msconfig** or **msconfig.exe**, I receive this error message: "Cannot find the file 'MSCONFIG' (or one of its components). Make sure the path and filename are correct and that all required libraries are available." I'm running Windows 2000 on this computer, and I don't have this problem on any of my other computers. How can I correct this problem?

A For reasons known only to the folks at Microsoft, Msconfig wasn't included in Windows 2000 or Windows NT. Our guess is that because both of these OSes (operating systems) target corporate users, developers assumed end users wouldn't need Msconfig's flexibility. Microsoft has seen the error of its ways and reintroduced Msconfig in Windows XP. That leaves you with two options.

The first is to simply copy Msconfig.exe from one of your other computers and install it on your computer that's running Windows 2000. This may be easier for you than having to trudge through the Registry looking to and fro for Startup entries. If you use the Msconfig.exe from WinXP, you shouldn't have any trouble. Copy the file to your WINNT/ SYSTEM32 folder. Using versions from Windows 98/ Me will work in the same fashion, but you'll see some error messages that you can safely ignore.

As an alternative, you may wish to use one of the many utilities available for customizing your startup options. Our favorite is Mike Lin's Startup Control Panel, available at <http://www.mlin.net/StartupCPL.shtml>. Startup Control Panel is free and offers you a bevy of choices in configuring program startup. We liked it so much that we've installed it on all of our test machines. It is compatible with all versions of Windows from Windows 95 on.

Q I've just loaded WinXP Pro on my computer, which has two CD-ROM drives and a card reader. WinXP apparently names drives on a first-come, first-serve basis. My bootable drive, normally C: drive, has become the F: drive. Is there a quick way to change the drive back to the C: drive in WinXP?

A Unfortunately, the quickest way to safely change your bootable drive's letter assignment is to reinstall Windows. As painful as this may sound, mucking about in the Registry is a sure way to give yourself persistent headaches. In addition to Registry entries, there are numerous text entries throughout Windows that record the system drive's letter assignment. Microsoft has a Knowledge Base article telling you how to change drive letters in Win2000, but the company makes no guarantee that it will work for WinXP. If you want to at least read the article, go to <http://support.microsoft.com>, type 223188 into the Search The Knowledge Base text box, and click the green arrow.

Our recommendation is this: Remove the card reader and one of the CD-ROM drives. Next, reinstall WinXP. Once that's completed, add the card reader and the second CD-ROM drive. This should result in your boot drive being labeled as C:, your first CD-ROM as D:, and the card reader and second CD-ROM as E: and F:.

If you wish to reassign nonsystem drive letters, Microsoft has made that much easier to do in WinXP than changing bootable drive letters. First, log onto your computer as Administrator or with an account that's a member of the Administrator's group. Click Start, Control Panel, and Performance and Maintenance. Next, click Administrative Tools, and then Computer Management. Under Storage, select Disk Management. Right-click the drive you want to readdress and put a check in the Change Drive Letter And Paths box. Click Change and choose a new letter from the drop-down menu. Click OK and then Yes.

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**See Order Form
On Other Side**

Remember, the letter you choose needs to be one that's not currently in use, so you may have to do some creative juggling before you get all the drives exactly the way you prefer.

Q I have a Toshiba Satellite 2535 notebook running Win98SE. The list of programs from my Start button displays 28 lines, and two more are visible if I scroll down. The top starts with the letter C, and Accessories, System Tools, etc., are not visible, but there's no way to scroll up. How can I display or access these programs, other than by removing some listings to make it all fit?

A First, try organizing your program list alphabetically. Click Start, point to Programs, and right-click the menu. Choose Sort By Name from the context menu. Unless the Accessories folder has been removed from your system, it should now be at or near the top.

If scrolling to access programs annoys you, there is another alternative. You can group your programs into a smaller number of folders. On one of our systems, we created folders for Artwork, Word Processing, System Utilities, and so on. Here's how: Right-click the Start button and click Open on the context menu. You'll see a folder containing your Programs folder and, when you double-click it, you'll see all of the other folders inside the Programs folder.

To consolidate the items on your Start menu, create new folders with broader group names. You could sort by company (all Microsoft products go here, Corel goes there), or you could organize by function. Once you've created new folders (click File, New, and Folder), right-click and drag other folders into the new folders and select Move from the pop-up menu that appears when you release the mouse button. What remains when you're finished is a short list of items on the Programs menu, leading to other menus with equally short lists of items. You'll have replaced the scroll arrows with multiple smaller menus reminiscent of Win95's look and feel.

Q I have an Iomega 250 Zip drive (D: drive). It no longer has a preview picture on the left side when I open the drive. How do I get the preview picture back?

A The problem has nothing to do with your Zip drive. It has to do with your Windows Explorer settings. These settings can apply to every drive, folder, and subfolder in your system or to one specific folder. To get the preview you've lost, you first have to set Windows Explorer to show Web content in a specific folder. Open Windows Explorer, click Tools, and then click Folder Options. What you do next depends on the version of Windows you have. You can

set the view to have all folders show Web content, to behave as classic non-Web folders, or to only show Web content when there is some. The primary choices are on the front of the Folder Options dialog box, but in Win95/98/NT, you need to click Custom first to find the choice that modifies when to show Web content. In Win2000/Me/XP, that choice is on the first page of the dialog box, not buried a level. If you stop here, this specific folder will be viewed this way until you change it, but folders above and below it will still be set to whatever view settings were in place before you started changing things.

To make your settings apply to all folders, click the View tab. Click the Like Current Folder button to extend these settings throughout your system.



Miscellaneous Software

Q I've had Spybot S&D on my computer for some time and was very pleased with it. Last week, however, moments after I did a live update from Norton, a red warning window appeared on my screen saying I had a virus on my computer called W32.Spybot.Worm. There was no way to get rid of this warning until I deleted Spybot and went into the Registry where there were three Spybot entries I needed to delete before I could have my computer back. What do you know about this? I'd like to have Spybot S&D back, but will it cause problems again? Is this Spybot worm related to the Spybot S&D program?

A Despite the similar sounding name, the W32.Spybot.Worm is *not* related to SpyBot S&D. Whether it was a mischievous play on words, or an attempt to discredit SpyBot S&D, we may never know. By running Norton AntiVirus, you flushed the W32.Spybot.Worm out of your computer, and editing your Registry settings will prevent it from reinstalling itself at some point in the future. If you uninstalled Spybot S&D through Windows' Add/Remove Programs, you can now safely reinstall it.

In addition, W32.Spybot.Worm is not really a virus, but instead a worm. The general definition of a worm is that it installs copies of itself on target computers. In contrast, a virus actually changes files already installed on your computer.

We can't know for certain how your computer became infected, but the W32.Spybot.Worm is generally spread through file-sharing programs such as Kazaa. However, an up-to-date antivirus software should detect it. The W32.Spybot.Worm installs a backdoor program (among several others) that lets someone on the Internet access and control your computer. In

addition, the worm installs a keylogger program. Keyloggers keep a running tally of every key you press on your keyboard, including usernames and passwords. Periodically, the keylogger will send this information to a remote host. The main goal of keylogging programs is to obtain your passwords. If you think that your computer may have been a victim of W32.Spybot.Worm for an extended period, we strongly recommend that you change all of your passwords as soon as possible.

Q I have Easy Video Joiner, and it only works with RealOne Player. I need a joiner program that works with Windows Media Player. Are there any other joiner programs available?

A Easy Video Joiner is designed to let you stitch videos in AVI (Audio-Video Interleaved), MPEG-1, 2, 4 (Moving Picture Experts Group), and RM (RealMedia) formats together end-to-end to produce a longer file. According to the publisher, DoEasier.org (<http://www.doeasier.org>), the latest version, 5.21, updated on June 30, works with Windows Media Player 9. There's also a seven-day free trial and a \$19.95 registration fee.

As an alternative, you might want to try Share2s X Audio Video Joiner (<http://www.share2s.com/video>) for \$18. There is a time-limited free demo.



Online

Q How can I get a copy printed of my email addresses as they appear when I view them on-screen? I don't

want a many-sheeted print out. I have the latest version of Outlook Express and WinXP.

A As you've discovered, Outlook Express will print out each contact in your Address Book on a separate sheet of paper when you select Print from within the Address Book. It's doubtful that many users find this waste of paper convenient, but we know an alternative. Our solution won't be a thing of beauty, but it should work for you.

First, launch Outlook Express and then click File, Export, and Address Book. This will launch the Address Book Export Tool.

Typically, you'll have two options from which to choose: Microsoft Exchange Personal Address Book and Text File (Comma Separated Values). Select Text File (Comma Separated Values) and click the Export button. In the CSV Export Wizard, choose where you would like to save your file and then give it a name. We recommend that you choose a name that's going

to be easy for you to remember (perhaps in Mycontacts) and then click the Browse button to save it to your Desktop.

Click Next for the set of options you'll need in order to export your contacts. Choose how much of the information contained in your Address Book you want to export.

In your case, put checks in the Name and E-mail Address checkboxes. If other options are checked by default, click them to remove the checks from the checkboxes. Now click Finish to complete the process. A pop-up window should confirm that the Address Book export process has successfully completed.

Now you should have a file named Mycontacts.csv. By default, this file type will be associated with Microsoft Excel. When you double-click Mycontacts.csv, Excel will launch and display your contacts with the appropriate email addresses.

You can edit and manipulate this file as you would any Excel spreadsheet. If you don't have Excel installed on your computer, you can also open this file with any text editor such as Notepad, WordPad, or even Word.

Q I am using WinXP and Outlook Express. I frequently receive email messages from trusted sources that contain a forwarded-attachment file with an .EML (Microsoft Outlook Express email) extension. I can usually open the attachments, but sometimes there's absolutely nothing in the body of the message. Neither the sender nor I know why the .EML extension is there and why the body of the message is missing. I've asked many local, knowledgeable computer "experts" about this, but no one has a satisfactory answer. Can you help me here?

A Outlook Express uses EML for MIME (Multipurpose Internet Mail Extensions) attachments, as well as any saved message. MIME is an official Internet standard for sending emails that contain non-ASCII (American Standard Code for Information Interchange) character sets, enriched text, graphics, and other files such as multimedia, audio, and video formats. When someone forwards you an email, Outlook Express may (depending on the contents of the message) encode the message as a MIME attachment and append the .EML extension to the message. Depending on how the sender formatted the original email, the body may appear to be blank.

You can view the contents by pressing CTRL-F3. If that fails, you should be able to open the message in Notepad or WordPad.

Email is actually a text-based medium, so when you want to send someone an image, audio file, or any

other nontext file, your mail client creates a MIME attachment for the file. This attachment is basically a textual representation of the file you're sending.

Hardware

Q I have WinXP Home with SP1 (Service Pack 1) installed on my PC, and I use Norton's Internet Security 2003, which includes a firewall. I have Road Runner for my broadband cable Internet service. I unplug the cable modem along with my computer when I'm finished using it. Therefore, it's not a persistent, or always-on, connection. I don't have File And Print Sharing enabled. Do I still need a hardware firewall, even though I have a software firewall installed?

A First, we'd like to congratulate you on being proactive regarding your computer's security. We often hear tales of woe where users never expected that their computers were vulnerable to attack. Many users are oblivious to the danger until they find their computer exploited by the latest attack sweeping the Internet.

Adding a hardware firewall to protect your computer is a prudent measure if your budget can cope with the financial burden. A hardware firewall will add another layer to your security perimeter, as well as protect additional computers in the future. Ask any security consultant about protecting a computer system, and he'll tell you that the key is a series of layers. Each layer makes it that much harder for a miscreant to wreak havoc on your system.

Hardware firewalls are often included in many router/switch devices and are usually easy to configure. Regardless of the type of firewall you use, it's important to continually update it. Even hardware devices have updates that you'll need to apply in a timely fashion.



Multimedia

Q I am having trouble connecting my VCR to my Dell Inspiron 8100 notebook PC, so I can edit

videos for a school program. I bought the notebook solely for this purpose. I have a 30GB hard drive with a GeForce 2 Go (Dell Mobile), a True Color (32-bit) display with a resolution of 800 x 600, and 256MB of RAM. I'm running WinXP Home with Academic Pro. The Dell Solution Guide gives no illustrations for VCR connections. I have Windows Media Player software, but I suspect that Dell didn't install a video capture card or the necessary software.

A According to the specifications posted by Dell for your Inspiron, the 8100 does not have the means to capture video content. However, all is not lost.

Depending on your quality standards, there are several peripherals that can help you in your cinematic journey.

The first item you'll need is a video capture device to transfer your video from tape to your notebook PC. Most VCRs record the video signal as an analog source onto VHS tapes. Because computers work in the digital realm, a video capture device or card is necessary to digitize the signal so you can edit it on your computer. The problem you face is that most of these capture cards are designed for desktop PCs or integrated with video cards.

There are a few options, however, from peripheral manufacturers such as Dazzle (<http://www.dazzle.com>) and Pinnacle (<http://www.pinnaclesys.com>). Your Inspiron has two options for high-speed connections: USB (Universal Serial Bus) and FireWire.

Pinnacle makes an affordable USB device, the Linx USB Plus, which sells for \$69.99. This is a multiheaded adapter that looks like an octopus. To use it, you connect it to your Inspiron with its USB adapter and connect the other end to your VCR's output. Depending on your VCR, you may have a composite connection, an S-Video (Super-Video) connection, or both. The composite connection is often referred to as an RCA connector.

Generally, if you have S-Video connectors on your VCR, they'll yield a higher quality signal than composite connectors. To transfer the audio portion of your tapes, you'll need to connect a special RCA cable to your Inspiron's stereo input. This cable will have two RCA connectors at one end and a stereo mini plug at the other. Insert the mini plug into your Inspiron and connect the two RCA connectors to your VCR's audio outputs.

The only downside to using a USB device to capture video is the risk of losing (dropping) frames during the capture process. Some USB devices can't transfer data as fast as FireWire, and if your Inspiron waits too long for a signal, it may lower the fidelity of your recording.

An alternative is a capture device such as Dazzle's Hollywood DV. Available from online vendors for \$220, the Hollywood DV uses the speedier FireWire interface for transferring your video to the Inspiron. In addition, the Hollywood DV has RCA inputs for your audio tracks, negating the need for an additional connection to your Inspiron.

Using the Hollywood DV is pretty straightforward. First, connect your VCR to the Hollywood DV with either a composite or S-Video cable. This takes care of the video signal. Next, use RCA cables to connect your VCR's audio outputs to the Hollywood DV's audio inputs. Finally, connect the Hollywood DV to your Inspiron with its FireWire cable. Although the Hollywood DV is more than three times the price of the Linx USB Plus, it's a more reliable way to transfer video to your Inspiron notebook.

FAQ

Frequently Asked Questions

Answers to users' most common questions about

DirectX

FAQ: What is DirectX, and why is it so important?

DirectX is actually a set of powerful audio, video, input, and networking APIs (Application Programming Interfaces) that are installed and available under Windows. Programmers often design their software to employ these video and audio tools, such as advanced 3D graphic rendering and positional sound, along with control for input devices and networking platforms. Having an established library of useful features with which to work can speed program development, improve compatibility, and dramatically reduce debugging time. Today, most multimedia applications and computer games (both relying heavily on video and audio performance) incorporate support for DirectX. Consequently, your PC must have a suitable version of DirectX installed; without DirectX, the dependant game or other program simply won't run.

FAQ: How do I know what version of DirectX to use, and how do I check my current DirectX version?

Microsoft updates DirectX to take advantage of emerging video and sound hardware. Because of the frequency of the updates, you may be confused about which version you have and which you need. You can determine the required version of DirectX by looking at a program's system requirements. For example, you might find a requirement, such as DirectX 8.0a or later required, listed on the box. System requirements are also repeated at the beginning of the program's manual or installation guide.

You can check which version of DirectX is on your PC by running the DxDiag utility. Click Start, and then Run, type dxdiag in the Open field, and click OK. DxDiag will start in a moment and provide you with a number of information tabs detailing every critical aspect of DirectX. On the System tab, the version of DirectX appears as the last entry under System Information. You may see DirectX 8.1 (4.08.01.0810), for instance.

FAQ: What happens if I'm using an older version of DirectX?

Microsoft has taken pains to keep newer versions of DirectX backward compatible with older features. This means you can use newer versions of DirectX with older software, and there should be no ill effects. In fact, some performance aspects of the older software may seem improved. You can usually update DirectX without any compatibility worries. However, there are almost always problems when you run newer software with older versions of DirectX.

Rarely, programs are designed around a specific version of DirectX, and you may have trouble even when you use newer versions of DirectX. Often, the software maker then releases an update or patch to accommodate newer versions of DirectX.

In many cases, compatibility errors are acute, and titles often refuse to run at all when older DirectX versions are in place. New software may not even install unless it can find a suitable version of DirectX. On rare occasions, the new software may run, but you'll experience more subtle performance issues such as odd color assignments and absent visual effects.

DirectX upgrades don't automatically upgrade your video, sound, or other hardware-specific drivers, so you may also need to upgrade related hardware drivers.

FAQ: How do I get the latest version of DirectX?

New software often includes the newest version of DirectX, so you can update DirectX after installing the new software. However, programs you download or try as demos don't often include DirectX (due to size concerns). You may also wish to update your current version of DirectX without installing any new programs. In any case, you'll need to download and install the latest version of DirectX from Microsoft at <http://www.microsoft.com/windows/directx/default.aspx?url=/windows/directx/downloads/default.htm>. Version 9.0b is the latest version currently available for Windows 98SE/Me/2000/XP. Windows 95 users are limited to DirectX 8.0a.



Pay Up, Pal

I used PayPal for the first time in June 2003, to complete an online transaction. On July 1, PayPal had withdrawn \$4,350 from my bank account for a transaction I knew nothing about. I contacted my bank, and after explaining the problem, the bank reversed the transaction. I closed the bank account so this wouldn't happen again. The good news is that I got my money back. However, PayPal never responded to my questions about this transaction, so I don't know how this problem occurred. I sent multiple email messages and two certified letters, but I have yet to receive a reply. I spent \$250 on new security software and technical support in the hope of securing my PC and preventing future problems. I still can't believe PayPal hasn't acknowledged my letters—a reputable organization should be eager to explain problems of this magnitude.

Walter A. Ludewig
Nassau, NY

We emailed a PayPal public relations contact to see if someone at the company could explain Walter's unauthorized transaction and to find out why no one had responded to his queries. A few days later, a PayPal representative called us and promised to look into the matter. In a follow-up call, the representative told us that PayPal's technical team confirmed that Walter's account had been "spoofed." The PayPal representative said Walter was probably a victim of a scam called phishing, in which users receive official-looking email messages requesting PayPal information. In fact, the phishing messages are from crackers hoping someone will reply with account information that will make the user's finances available. The representative explained that users are never responsible for funds transferred in a phishing incident, so Walter was never in danger of losing his money. As for the lack of communication with Walter, PayPal had no explanation, just an apology. The company representative said that PayPal typically responds to serious account questions within two to four hours.

I have been charged for two AOL accounts since the winter of 2002, but I've never used AOL, even for a trial period. The customer service representatives put me on hold every time I call to inquire about the charges, and eventually the calls get dropped. Can you help us stop the charges?

Earl Heitz
Hatfield, Penn.

We emailed AOL's public relations department, and several days later, a representative replied saying Earl's problem was resolved, and that there had been some miscommunication between Earl and the company. A month later, Earl confirmed that AOL removed two charges for \$142 each. In the letter to Earl, the company indicated it was sorry to lose Earl's business—on two accounts he never opened in the first place.

I bought an HP MFD (multifunction device), and I've been calling the company's technical support line for nearly three months in an attempt to make the product work properly. The unit seems to work OK at times, and at others, not at all. I've tried to return this MFD to the Office Depot I bought it from, but the store tells me that HP is responsible for a refund. The people I talk to at HP just ask for more details on the problems but refuse to authorize a return. Can you help me?

Wally Currlin
Lauderdale Lakes, Fla.

We first contacted an HP representative about Wally's problems in mid-July 2003. The company took two full months to resolve these matters by sending Wally a new, upgraded MFD. In those two months, the case was bounced from representative to representative, until reaching an HP employee who promised to help. This representative was in a serious car accident, which further delayed a resolution. Ultimately, Wally said his new MFD was working fine and that he was pleased with the effort HP put forth to help him.

ACTION EDITOR

Are you having trouble finding a product or getting adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you're having with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you.

Letters may be edited for length and clarity; volume prohibits individual replies.

Write to:
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QUICK TAKES ON THE WORLD OF TECHNOLOGY

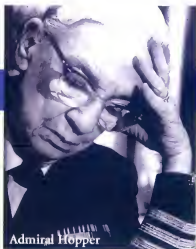
"Any sufficiently advanced technology is indistinguishable from magic."

-Arthur C. Clarke

Weird Computing

The World's Least Popular Download:

New Zealand Maori Keyboard Definition. This download reconfigures the U.S./international keyboards supplied in New Zealand to support the macron characters used in the Maori language. Available at www.microsoft.com. And it's free!



Admiral Hopper

Q: By far, most of last year's 75,000 Internet-related fraud complaints (46% of them) have to do with online auctions. Would you feel safe making a purchase via an online auction? Why or why not?"



"There is one caveat I strictly adhere to when purchasing products from online auction sites. Unscrupulous sellers hide behind the veil of ambiguity of the Internet. I do a search of the seller's location. Should the location's proximity be close enough to mutually travel and meet, we do the transaction."

—Bruce Pechman, vice president, Atlanta PC Users Group



"I personally have had great experiences with online auctions. Based on the numbers quoted, however, I do feel a little less confident. I've been tremendously surprised at the fantastic customer service, as well. I am confident to state that customer service has been better in the virtual environment than the physical environment"

—Todd Jensen, instructional tech project manager and New Media Center coordinator, University of Nebraska-Lincoln

Computer Haiku by Jenifer Edens



Stuck key on la-to- Letter between "o" and "q"
It's quite a -roblem

Dial-up connection:
The river runs slowly and drowns away patience.

Stuff You Should Know

Grace Hopper, the computer scientist who ran the U.S. Navy's computer efforts (and whom some say coined the term "bug" to refer to a glitch in a computer), wrote the first compiler. (It was used to compile COBOL instructions to machine language.) She retired as a rear admiral and passed away in 1992.

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